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Marine Casualty Investigations

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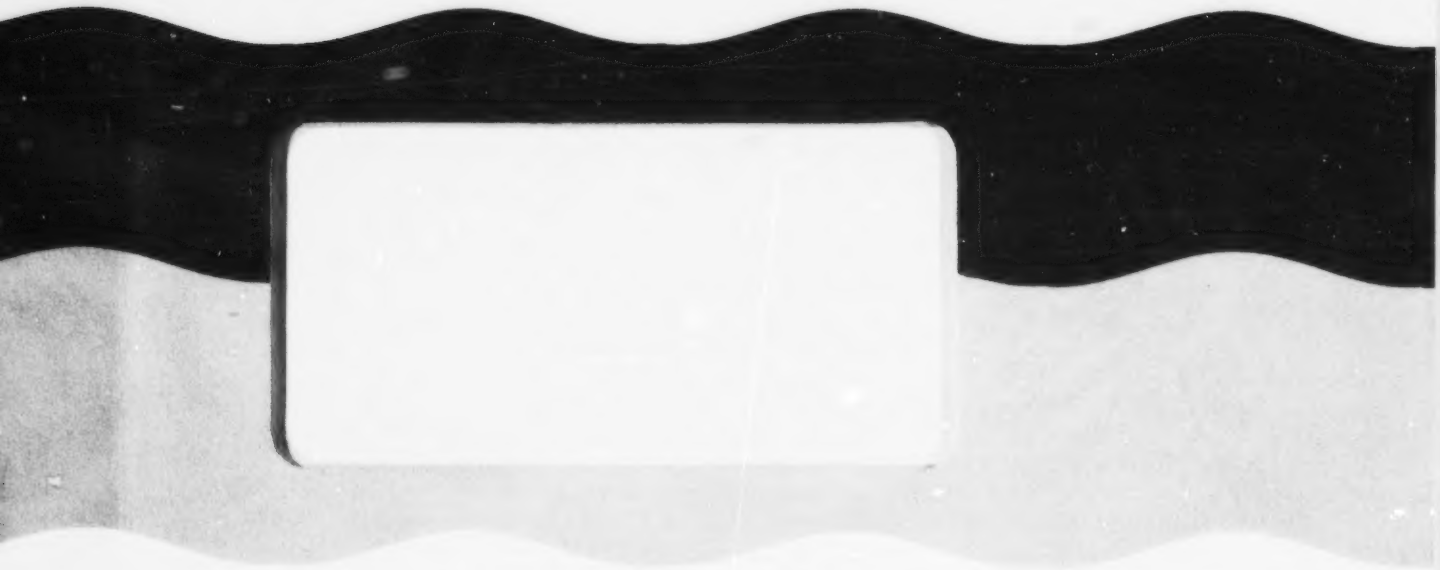

Investigation Report to the Minister pursuant to sections 542 or 545 of the Canada Shipping Act

Rapport d'investigation au Ministre conformément aux articles 542 ou 545 de la Loi sur la marine marchande du Canada

Canada

Ce rapport est aussi disponible en français

REPORT OF INVESTIGATION INTO THE CIRCUMSTANCES SURROUNDING THE STRANDING OF CANADIAN LICENSED VESSEL "61D403", ATTENDED BY THE LOSS OF LIFE BY 2 PERSONS AND THE DISAPPEARANCE OF 3 OTHERS, WHILE THE VESSEL WAS ON A VOYAGE FROM CAP-AUX-MEULES TO ÎLE D'ENTRÉE, ÎLES-DE-LA-MADELEINE, Qc, NOVEMBER 21, 1987.

REPORT No. 512

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REPORT OF INVESTIGATION INTO THE CIRCUMSTANCES SURROUNDING THE STRANDING OF CANADIAN LICENSED VESSEL "61D403", ATTENDED BY THE LOSS OF LIFE BY 2 PERSONS AND THE DISAPPEARANCE OF 3 OTHERS, WHILE THE VESSEL WAS ON A VOYAGE FROM CAP-AUX-MEULES TO ÎLE D'ENTRÉE, ÎLES-DE-LA-MADELEINE, Qc, NOVEMBER 21, 1987.

Particulars of Vessel

Name	Un-named open boat
Official Number	"61D403"
Licensing Port	Cap-aux-Meules, Qc.
Gross Tonnage	under 15
Length overall	8.63 m
Breadth	3.05 m
Depth	1.29 m
Draught - (approximate)	0.8 m
Built	1968 by Kastel Goodwin Grosse Ile, Iles-de-la-Madeleine, Qc.
Propulsion	One Chevrolet gasoline 6 cylinder engine, 292 cu ins, driving a single fixed pitch propeller through a gear box. 135 s.h.p. max 10-11 knots at 3000 r.p.m.
Cargo	Approximately 2025 L gasoline in 10 barrels, 1751 kg and about 4 cartons provisions.
Crew	2
Guests	3
Owner	Danny Mclean Ile d'Entrée Iles-de-la-Madeleine Quebec
Pump	One Rule 12V 65A bilge pump capacity 4.5L/sec fitted with an automatic switch, MAYFAIR 601.

Navigational equipment

Compass	One portable boxed and gimballed magnetic liquid damped compass. Card diameter 3" Manufacturer SAURA KEIKI SEISAKUSHO.
C.B. R/T	JOHNSON Mark Messenger 123A
Instruments	One revolution counter, one ammeter, one oil pressure gauge, one engine water cooling temperature gauge.

Description of vessel

Licenced vessel "61D403" was a carvel-built wooden-hulled fishing vessel of open construction. She was fitted with a plywood wheel-house aft, in which there were a remote steering wheel and engine controls. With the exception of a well abaft the wheel-house she was equipped with a portable plywood deck at a level of about 0.3 m below the gunwale in way of her mid-length engine.

In 1980 the hull was covered with 3 coats of fibreglass and resin. In 1987 the vessel had her mackerel hand-line fishing permit, number 11469, renewed by Fisheries and Oceans, Canada.

At the time of the casualty, as on frequent other occasions, the vessel was employed in the transport of goods, in this case gasoline in barrels and provisions for the use of the owner's family from Cap-aux-Meules to Ile d'Entrée, Iles-de-la-Madeleine.

Being under 15 tons gross tonnage, the vessel was not required by the regulations to be inspected by the Canadian Coast Guard. Further, as the vessel had never been insured by the Fishing Vessel Insurance Plan, Fisheries and Oceans, Canada, she had not been appraised for these purposes, and there is no record of her ever being inspected by the R.C.M.P. or the Sûreté du Québec for compliance with the Small Vessel Regulations.

Note: 1. All times in this report are expressed in AST. (Atlantic Standard Time) (UTC - 4 hours).

2. A glossary of abbreviations can be found following the findings of this report.

Background

"61D403" departed from the quay at Cap-aux-Meules at approximately 1450 on November 21, 1987 for Île d'Entrée, a distance of about eight nautical miles.

On board were five persons, three of whom were believed to be guests.

While at Cap-aux-Meules, ten empty 205 L drums on board had been filled with gasoline and the vessel's 205 L gasoline tank also half-filled. There were also 4 or 5 cartons of provisions on board for various residents of Île d'Entrée.

At 1615 a telephone call from a resident of Île d'Entrée was received at Grindstone CGRS. The call reported that "61D403" was overdue at Île d'Entrée.

A search and rescue operation was launched involving fishing and commercial vessels, a Canadian Coast Guard lifeboat and helicopter, ground search party of volunteers, the Sûreté du Québec and a SAR Buffalo aircraft from CFB Summerside.

Floating debris including drums was found in approximate position 47°11'30"N, 61°48'04"W, at 2113 by the ferry "LUCY MAUD MONTGOMERY". Most of this debris was later recovered by CCGV "CAP-AUX-MEULES" (Lifeboat No 2682).

At about 0530 on November 22, 1987 the wrecked vessel was found by volunteers on shore on the southern side of Sandy Hook in approximate position 47°16'N 61°47'W. The body of a guest was found in the wreck. A short time later the body of a member of the crew was found on the beach about 300 m west of the wreck. Other articles from the vessel were also recovered from the same beach.

The search for survivors or bodies was continued for another 3 days by various means, but none was found. The vessel, which had been valued at about $3000, was a total loss and the wreck was later destroyed by her owner.

Particulars of the deceased and missing:

Name	Lorne McLean
Position aboard vessel	Fisherman
Age	27

Address	Île d'Entrée Quebec
Cause of death	Drowning
Name	Kimberly Patton
Position aboard vessel	Guest
Age	18
Address	Île d'Entrée Quebec
Cause of death	Drowning
Name	Dalbert Mclean
Position aboard vessel	Fisherman
Age	19
Address	Île d'Entrée Quebec
Cause of death	Missing, presumed drowned
Name	Tracy Clark
Position aboard vessel	Guest
Age	25
Address	Île d'Entrée Quebec
Cause of death	Missing, presumed drowned
Name	Darla Hickey
Position aboard vessel	Guest
Age	33
Address	Lanoraie Quebec
Cause of death	Missing, presumed drowned

Narrative

Having borrowed the vessel "61D403" from her owner in order to transport gasoline and other provisions to the Île d'Entrée from Cap-aux-Meules, the owner's two brothers left the Île d'Entrée aboard the vessel at about 1145 on December 21, 1987 for Cap-aux-Meules.

Of the ten empty 205 L (45 gallon) drums stowed vertically on the vessel's plywood deck forward of the wheelhouse, two were stowed on each side of the engine cover.

The vessel arrived at Cap-aux-Meules at about 1230 and made fast starboard side to the quay. Arrangements were made to fill the cargo drums and to bunker the vessel. A road tanker arrived on the quay shortly after 1300. After having filled the drums forward with an approximate total quantity of 2025 L of gasoline, the vessel's fuel tank was replenished

with a further 89 L (20 gallons) of gasoline. The total quantity of gasoline loaded was 2114 L.

The drums were not lashed in place. This loading operation was reported to have been completed by about 1430. During this time 4 or 5 cardboard cartons of provisions were also reported to have been carried aboard and to have been stowed in the wheel-house.

After the road tanker driver had completed filling the drums and fuel tank, he assisted in letting go the vessel's lines and held on to the bow line to allow the last of the three female guests to embark. The known and presumed victims were seen to be aboard and the comportment of all five appeared normal. No one was wearing a lifejacket or any other form of PFD at the time. The vessel was ranging up and down the quay in the swell.

The vessel departed about 1445 and was seen to head out of Cap-aux-Meules harbour. While the direction and speed of the wind in the harbour was not noted by the witness it did not appear to be strong. It was raining.

Previously, the ferry "GERTRUDE AND BEATRICE" had departed from Cap-aux-Meules for Île d'Entrée at 1400. On departure the wind was observed by those on board to be NE at 5 to 10 knots. After passing buoy YD2 and losing the shelter of Cap Alright the wind velocity increased rapidly, and had further increased to 20 to 25 knots when the vessel arrived at her destination at about 1445.

The "GERTRUDE AND BEATRICE" departed Île d'Entrée to return to Cap-aux-Meules at 1510. Once clear of the break-water at the Île d'Entrée, the wind velocity was estimated by those on board to have increased to 25 to 30 knots. It was raining, there was a mist, the vessel was shipping spray and visibility was estimated to be about 2 miles. Seas, which were very rough in the area of La Passe, were estimated to be about 1 m high in the open water of Baie de Plaisance, and about 2 m high where they were breaking on Sandy Hook.

The vessel's radar, which was reportedly working well on the six miles range, detected buoys at a range of about 4 miles. No unidentified radar echo was sighted on the vessel's return passage to Cap-aux-Meules. The radar was frequently used for navigation purposes and a visual look-out was kept. There was no sighting of any other vessel.

Shortly after 1600 some residents of the Île d'Entrée became disturbed that "61D403" had not arrived there. The vessel was called on CB radio channel 11, the channel

normally employed by the fishermen from the island. No reply was heard.

The CCG lifeboat station at Cap-aux-Meules monitors CB channel 9 from 0800 to 1600 daily. Although "61D403" was equipped with this channel no call for help was heard on this frequency.

At about 1615 a resident of the Île d'Entrée reported to VCN, CGRS Grindstone, by telephone that the "61D403" was overdue. After having obtained a negative sighting report from the master of the "GERTRUDE AND BEATRICE", VCN reported the incident to RCC Halifax.

CCGV "CAP-AUX-MEULES" was tasked by RCC to search for the overdue vessel at 1635. The coxswain and crew, who had, as normal, gone off duty to their homes at 1600, were paged. They returned to their vessel, and she departed Cap-aux-Meules at 1705 to search for "61D403". It was determined by personnel on shore that the overdue vessel had not taken shelter in Havre Aubert on the northern side of Sandy Hook.

At the request of RCC, VCN broadcast a 'PAN' message at 1653 requesting all vessels to keep a sharp look-out for the overdue vessel.

The fishing vessel "S.S. BEVKEN", which was en route for Cap-aux-Meules from sea, reported at 1656 that she would join the search in the area East and South of the Île d'Entrée, about 3 to 4 miles off shore.

The fishing vessel "RACHEL M.D." sailed from Île d'Entrée at about 1700 and searched the north side of Sandy Hook.

CCGV "CAP-AUX-MEULES" proceeded on a direct course for Île d'Entrée and entered into VHF communication with the "S.S. BEVKEN" and "RACHEL M.D". The Coast Guard Vessel passed between these two vessels and on approaching La Passe, having not sighted the "61D403", turned to starboard and returned towards Gros Cap keeping clear of the broken water along the northern side of Sandy Hook. While small vessel radar targets were observed at distances of about 3 miles, upon verification none of these was found to be the "61D403".

At 1945, the "CAP-AUX-MEULES" was brought round and headed back for Sandy Hook again keeping clear of the broken water. The wind was recorded on board as being NE Beaufort force 7 (28 to 33 knots). The vessel's radar was working well but although echoes were picked up at two miles, these were determined to be the other vessels assisting in the

search. Visibility was recorded to be about 3 miles. The vessel continued her search.

Having departed Souris, P.E.I. earlier in the day, the ferry "LUCY MAUD MONTGOMERY" was enroute for Cap-aux-Meules. At 1653 she responded to the 'PAN' message broadcast by VCN, and maintained a look-out for the missing vessel. At 1800 she hove to about 3 miles south-west of Sandy Hook.

At 2113 "LUCY MAUD MONTGOMERY" reported having sighted an oil drum floating low in the water. At 2132 she reported a sighting of 2 new and 2 older oil drums, a lifejacket, plywood a piece of which may have been a door, and other wooden debris in position 47°11.5'N 61°48.04'W.

At 2144, CCGV "CAP-AUX-MEULES" reported that she was en route to the "LUCY MAUD MONTGOMERY" to investigate the debris sighted. She arrived in the vicinity of the other vessel at about 2210 and commenced a search pattern while the "LUCY MAUD MONTGOMERY" continued her search further to the south, downwind.

At 0040 on November 22, 1987 the CCGV "CAP-AUX-MEULES" reported having recovered pieces of plywood, which were later found to be parts of the missing vessel's wheel-house, and other flotsam. In this debris was a red cover from a 4.5 litre bag of milk. Some other provisions were also found. It proved impossible to recover any of the oil drums sighted by the "LUCY MAUD MONTGOMERY". There was no sign of any person in the debris.

By this time the wind had backed to Northerly at about 33 knots with gusts to 40 knots and the wind appeared to be increasing. There were frequent snow and rain showers in which visibility was under 1 mile. The air was filled with driving spray.

The CCGV "CAP-AUX-MEULES" asked for, and was granted, permission from RCC to return to Cap-aux-Meules via Île d'Entrée to refuel and to prepare to return to the scene the next morning. She and the other vessels assisting in the search left the scene about 0045. The "LUCY MAUD MONTGOMERY" left to disembark her passengers at Cap-aux-Meules.

At Havre Aubert several people heard that "61D403" was overdue at about 2100 on November 21, 1987. Those who owned four wheel drive vehicles organized a patrol of Sandy Hook to search for survivors, which continued all through the night.

At about 0630 on November 22, 1987 the missing vessel was sighted by this patrol. She was aground, head on to the

southern side of Sandy Hook, in a position later determined to be approximately 47°15.4'N, 61°47.4'W. There was a female body hanging over the bow by the feet, which were entangled in some yellow polypropelene rope in the vessel. The body was immersed head first in the water. The rope in which it was entangled was cut and the body carried to the beach above the waterlevel.

About 300 m (1000 ft) to the West a second body, that of a male, was found lying face down on the beach. It too was carried clear of the water. Neither body was wearing a lifejacket and neither showed any vital signs.

Those who had made this discovery reported their findings to the Sûreté du Québec and the RCMP by CB radio. Both police forces dispatched agents to the scene. It was agreed that the Sûreté du Québec had jurisdiction. To the west of the vessel, over a distance of about 1.6 km (1 mile) were found a work-boot, a black leather jacket and a beige anorak. Later in the day parts of the vessel's wheel-house were also discovered in the area.

The vessel's wheel-house, engine cover and bottom boards were missing. Those who discovered the vessel remarked that, before any attempt to pull the vessel clear of the water was made, the garboard strake was separated from the keel at the stem deadwood for a distance of about 1 m aft. The distance between the separated strake and the keelson was about 5 cm. It was also noticed at this time that the forward thwart knees appeared to be broken as were several timbers. Other items of the vessel's equipment were seen to be lying in the sand in her bottom; these were reported not to have been disturbed.

At about 0800 on November 22, 1987, surface winds were from the NW at 22 to 27 knots. The mixed precipitation of snow and rain had ceased, visibility had improved to 5 miles. Previously a Buffalo SAR aircraft from Summerside CFB Prince Edward Island was tasked to overfly the scene of the accident.

Units assisting in the search this day were:

Unit	Time tasked	On scene	Secured at Base	Remarks
Buffalo R453	22.0729	0943	1705	On-Scene Commander
CCGV "CAP-AUX-MEULES"	21.1635	1021	1540	Crew change and refuel

Fishing vessels:

"S.S. BEVKEN"	Self tasked.
"RACHEL M.D."	Self tasked.
"COLOMBO"	Self tasked.
"AMANDA C."	Self tasked.
"MARYSE C."	Self tasked.
"FANNY L."	Self tasked.
"LUCY B."	Self tasked.

CG. Helicopter "CG362" 22.1314 22.1450 22.1600.

At about 1516 the "S.S. BEVKEN" found and recovered a piece of wreckage, later identified as having been part of the missing vessel's wheel-house, in position 47°12'N 61°55'W. Nothing further was found by any of the searching units. The search was reduced for the night in deteriorating visibility at 1705.

During the day efforts had been made, firstly by the four wheel drive patrol vehicles which had found the wreck of "61D403", to pull that vessel clear of the High Water mark on Sandy Hook. A 2.5 cm (1") diameter plaited nylon rope was passed through the split in the vessel's bottom and over the stem-head breasthook. While the vessel was pulled further up the beach, damage was caused to the stem head breasthook and the vessel's planking was separated from the stem apron on the port side. Due to this damage, further attempts by this means to heave the vessel up the beach were abandoned.

Later in the day a wire was passed through the separated planking at the bow, round the vessel's engine and the vessel was heaved on to a road trailer. Further damage was caused to her engine bed. The trailer and boat were then towed to a barn at La Vernière for storage and examination.

The search for the missing persons who had been on board the "61D403" resumed at first light on November 23, 1987 and continued until dark. Nothing further was found. The same units which had assisted in the search the previous day, with the exception of Buffalo R453, participated.

At 1524 the search was reduced and the case handed over to the Sûreté du Québec.

Some of the private self-tasked fishing vessels which

had participated in the Search and Rescue effort continued searching and dragging the bottom of the Baie de Plaisance for a further two days without result.

Analysis

1. Guests Aboard

The definition of passenger per the CSA is given in Annex VI. There is no evidence the three persons paid money for their passage and thus in this report they have been termed guests.

2. Weather and tidal conditions

At 0045 AST, November 21, 1987 (2345 EST November 20, 1987) the marine Synopsis issued by the Maritimes Weather Centre of Environment Canada stated:

> An intense low will move across the Gulf of St. Lawrence early this morning. Gale to storm force winds are reported east and north of the low. Moderate to strong northwest winds will develop over the western areas today. Strong to gale force Northwest winds will be the rule over all marine areas on Sunday.
>
> Marine interests are warned that storm warnings are forecast for Cabot Strait and gales are forecast for all the remaining areas.
>
> The gale warnings were continued until 1130 AST on Saturday 21, November 1987 when Environment Canada issued the following forecast which was broadcast by VCN at 1106 EST.
>
> Cabot Strait
> Northumberland Strait
> Gulf Magdalen
> Chaleur Miscou
>
> Gale warning continued
>
> Anticosti
>
> Winds variable 15 knots increasing to north-east 20 to 30 late this afternoon and to

northwest winds 25 to gale 40 Sunday morning. Rain or snow changing to flurries Sunday. Visibility zero to 2 in precipitation.

Temperatures plus six lowering to near zero overnight. Outlook for Monday .... strong westerlies.

Surface meteorological conditions, as recorded at Havre-aux-Maisons airport on November 21, 1987, were:

Time	Weather	Ceiling (Feet)	Vis.	Wind Dir x Sp	Baro. mbs	Air Temp.
1100	Broken cloud clr	3000	14+	290°x2	996.6	4.5
1134	Onset of precip.	3000	10	340°x3		
1200	Overcast rain/fog	2000	5	340°x4	996.2	4.7
1300	Overcast rain/fog	1500	4	330°x11	994.8	4.0
1400	Overcast rain/fog	1500	4	340°x15	992.7	3.7
1447	Pressure falling rapidly	300	2.5	350°x15		
1500	Overcast rain/fog	300	2.5	360°x14	991.1	3.5
1642	Pressure falling rapidly	300	1.5	020x26g32		
1700	Overcast rain/fog	300	1.5	020x26g32	986.3	2.8
1800	Overcast rain/fog	300	1.5	020x22	985.3	3.0
1842	Visibility improvement	400	4.0	010x18		
1900	Overcast rain/fog	400	5.0	360x20	984.2	2.9
2000	Overcast rain/fog	400	2.5	350x20	983.6	3.0
2100	Overcast rain/fog	400	2.5	350x26g36	981.1	2.5
2200	Overcast light rain/fog	500	6.0	350x28g35	980.6	2.1

Visibility in Statute miles
Wind direction x speed - g - gusts

Wind speed in knots
Air Temperature in °C.

Havre-aux-Maisons airport is on the western side of the island of the same name. It was reported that wind directions recorded there are not necessarily those which would be experienced in the Baie de Plaisance at the same time. Similarly wind velocities were reported to be lower at the airport than in the Baie de Plaisance.

Generally, the winds experienced over water will be greater in force than those recorded by shore-based weather stations. This difference will depend on several factors not the least of which is the relatively sheltered position of Havre-aux-Maisons airport. Visibility was also reported to be generally lower in the Baie de Plaisance than at the airport on the day of the casualty.

These variations are for the most part borne out by the estimates of wind direction and speed and of visibility made by several vessels on the day of the casualty.

STATION	TIME	WIND DIR. SP in KTS	VISIBILITY
"GERTRUDE AND BEATRICE"	1400	045° x 5-10	2.0
AIRPORT	1400	340° x 15	3.47
"GERTRUDE AND BEATRICE"	1510	045° 25-30	2.0
AIRPORT	1500	000° x 14	2.17
CCGV "CAP-AUX-MEULES"	1600	045 x 17-21	1.1
"LUCY MAUD MONTGOMERY"	1600	000 x 34-40	5.0
AIRPORT	1600	000 x 24	2.17

At 1510 "GERTRUDE AND BEATRICE" departed Île d'Entrée. At 1600 CCGV "CAP-AUX-MEULES" was secured alongside a wharf in Cap-aux-Meules. At 1600 "LUCY MAUD MONTGOMERY" was some 20 miles south of Sandy Hook.

The trend of the weather on the day of the casualty is, however, self-evident. The barometer fell rapidly throughout the day, the wind velocity increased steadily and the visibility was reduced to about 1 mile in the Baie de Plaisance. The weather in the Îles-de-la-Madeleine evolved as forecast.

Observations made by those looking for "61D403" from the quay at Île d'Entrée at about 1630 on November 21, 1987 were:

WIND NE 25 to 30 knots
SWELL NE Moderate in the Baie de Plaisance
VISIBILITY From 1/2 to 3/4 mile

It is not known if those on board "61D403" obtained a weather forecast by radio before sailing from either Île d'Entrée or Cap-aux-Meules. The vessel was fuelled at the quay directly opposite and a few metres from CGRS VCN where a forecast was available on demand. No such request was made.

According to the Ministère d'Agriculture, Pêcheries et Alimentation du Québec, the temperature of the seawater in the Baie de Plaisance was 2.7°C on November 25, 1987. Seawater temperature outside the bay was stated to be normally from 1.7° to 2°C less. It was not considered that there would be any detectable variation in these temperatures in the four days since the casualty.

Tidal predictions for Cap-aux-Meules, as per calculations by the Datum Analysis and Prediction Section of the Canadian Hydrographic Service, for the period November 21, 1987 to November 23, 1987 were:

DATE	TIME	HEIGHT FEET	TIME	HEIGHT	TIME	HEIGHT	TIME	HEIGHT
21	0300	0.7	1035	3.5	1500	2.5	2030	3.5
22	0340	0.6	1125	3.6	1535	2.6	2105	3.6
23	0425	0.5	1215	3.6	1610	2.6	2145	3.7

On November 21, 1987, hourly level predictions in feet for Cap-aux-Meules were:

1500 2.49, 1600 2.55, 1700 2.66, 1800 2.84, 1900 3.15, 2000 3.43, 2100 3.44, 2200 3.17.

The Gulf and River St. Lawrence Sailing Directions, Sixth Edition, 1985, state in Chapter II Para 51:

> **Tidal streams.** - Tidal streams around the Îles-de-la-Madeleine are very variable both in rate and direction. They are greatly affected by the currents and winds in the Gulf of St. Lawrence.

and in paras 53 to 57:

> On the SE side of the islands, the ebb stream sets strongly out of the lagoons, and out of Baie de Plaisance between Dune Sandy

Hook and Île d'Entrée. It also frequently runs to the west along the south coast of Île-du-Havre Aubert, around it, and NE along the north coast of the island from le Gros Cap to Pointe de l'Est. At the same time, the ebb stream sets NE and over the sand ridge lying about 1.2 miles off Pointe de l'Est, where it meets the SE setting stream, which has followed round the north coast of the islands, from Île-du-Havre-Aubert to Pointe de l'Est.

The meeting of the two streams, together with the shoal water, causes a heavy, breaking sea in strong east winds.

These observations hold good as a rule, and recur with considerable constancy in fine weather, subject to occasional interruption.

The rate of either stream seldom amounts to 1 knot, except close inshore, or round the points of land. The ebb stream is generally stronger than the flood, and its rate is increased by west winds, as is that of the flood by east winds.

The tide rise at springs is approximately 3 feet (0.9 m), and 2 feet (0.6 m) at neaps. On the west side of Île-du-Havre-Aubert and Île-du-Cap-aux-Meules, the tide is practically diurnal.

The vessel sailed from Cap-aux-Meules about 15 minutes before Low Water. As the wind started to increase in force about the same time it is unlikely that it unduly affected the time at which the tide turned to flood at La Passe.

The times of Sunrise and Sunset for the area of the search were:

DATE	SUNRISE	SUNSET
Nov. 21, 1987	0719	1626
Nov. 22, 1987	0721	1625
Nov. 23, 1987	0724	1623

3. Condition of the hull of "61D403"

As stated in the narrative, the vessel was hauled on to a road trailer and towed to a barn at La Vernière, Îles-de-la-Madeleine, on November 22, 1987. During the course of the inquiry the vessel was examined there.

It was reported that in 1980 the hull was covered from the keel to the waterline with a layer of 6 mm (1/4") plywood. The whole hull was then covered with a fibreglass coating consisting of 1 woven rovings and two layers of chopped strand matting, the whole being saturated with resin. The coating was about 2 mm thick, and a sample taken from near the gunwale showed that some glass fibres were not well saturated with resin. The condition of the fibreglass coating in other areas was not sampled or verified but, except in areas which appeared to have been recently damaged, the whole appeared to have remained bonded to the wood.

The fibreglass coating on the vessel's stem and skeg was repaired by the vessel's owner prior to re-launching on September 19, 1987. Earlier in that year it had been noted that there were minor leaks in these areas. Except for these areas the hull had been painted dark green.

When the vessel was discovered on November 22, 1987, it was noted that the garboard strake was separated from the keel for a distance of about 1 m aft of the stem deadwood. The breadth of this separation was about 5 cm. The stem, keelson and timbers in the area were somewhat softened by rot. The nails did not appear unduly corroded.

During the attempts made by several four wheel drive vehicles to heave the vessel up the beach, a 2.5 cm diameter plaited rope was passed through the separation and over the stem-head breast hook. The breast hook also served as the top of the small cuddy. When strain was placed on this rope, it further separated the planking from the stem on the port side to a distance of about 1 m from the stem-head. The rope was also pulled under the stem-head breast hook at the level of the starboard gunwale.

The forward thwart knees on the port side were broken. One of these knees showed signs of softening due to rot. This breakage was also discovered by those attempting to haul the vessel clear of the water before the attempt was made.

The four grown futtock knees all showed signs of damage. At the forward pair the damage appeared recent. The after pair were connected to the after wooden floor which also served as an engine support. The damage to this after floor and its knees would appear to have been caused by the wire strop which had been passed round the engine and attached to the winch of the road trailer used to remove the wreck from the beach.

The forward wooden floor was detached from both the hull and its emplacement under the forward end of the engine.

Many timbers were cracked or broken and the majority of this damage did not appear to be recent. Sections of some timbers were missing at the level at which the plywood deck had been fitted.

The propeller and plywood rudder were undamaged. There was a monofilament hand fishing line entangled in the blades of the propeller, but as it was not wrapped round the propeller shaft it is considered that it became entangled after the propeller had stopped.

Damage to the vessel's bottom was confined to that already noted. There was no sign that she had struck any object. Some of the vessel's port side paint had been rubbed off, but it is not known when this had occurred. The paint on the vessel's stem-head was undamaged.

Except for some 5 cm x 10 cm (2" x 4") wood nailed to the after thwart and to the starboard gunwale, the whole wheel-house structure was missing. The wood nailed to the starboard gunwale was broken at its upper edge.

As stated in the narrative, most of the plywood which had made up this structure was recovered by CCGV "CAP-AUX-MEULES". It was examined at the police station of the Sûreté du Québec at Cap-aux-Meules. Some window glass from the structure was found in the sand in the vessel's bottom.

Measurements taken of the wreck showed that her length overall was 8.63 m (28.3 ft) and not 9.45 m (31 ft) as on her licence.

In general the vessel's hull condition at the time of the casualty was considered to be generally fair. While the vessel had been covered with fibreglass resin, the coating applied added no structural strength to her 20 year old hull, and served only to eliminate leakage.

4. Equipment found aboard the vessel

A 4.81 (292 cu.ins) Chevrolet gasoline engine of 6 cylinders and its gear box was attached to the propeller shaft and propeller. The engine had been screwed to the two wooden floors by lag bolts but these bolts were missing from the forward mounting. It is not known when this occurred. The gearbox was in forward gear and the accelerator closed. While the motor control cables were attached to the motor, the Morse hand control lever which was reported to have been fixed to a shelf on the port side of the wheel-house was missing.

The vessel's steering wheel was reported to have been attached to a fascia board fitted on the port side of the wheel-house. It was found in the vessel but one half of the metal wheel was missing. The wheel drum, still attached to its fascia board, was found attached by its steering ropes to the tiller, lying in the bottom of the vessel.

A 205 L (45 gallon) drum was mounted horizontally across the vessel's stern, below the level of the bulwark. The drum was displaced on its mountings but not held down. It contained approximately 5 L of gasoline. Its fuel line, in which was fitted a fuel filter, carried the gasoline to the vessel's carburetor. The fuel filter was disconnected and there was a strong smell of gasoline from the sand in the vessel's bottom.

The vessel's instrument panel was found aboard. Gauges indicating engine cooling water temperature, oil pressure, amperes and revolutions per minute were all wired to their appropriate sensors on the engine. The panel was reported to have been positioned in the wheel-house on a table forward of the steering wheel.

The gauges indicating water temperature, oil pressure and amperes all indicated zero. The electronic revolution counter indicated 3,000 r.p.m. It was reported that the vessel's engine normally turned at 2,900 r.p.m. at cruising speed and that when the engine stopped or was switched off the tachometer continued to indicate the r.p.m. last turned by the engine. The ignition key was found in the 'on' position.

A 12 volt lead-acid battery was found connected to both the starting motor and the instrument panel.

A C.B. radio with microphone attached was also found buried in the sand in the vessel's bottom. It was

reported that the radio had been fitted in a bracket under the wheel-house deck-head. The radio's rotary volume control was set to maximum. The same control also served as an ON/OFF switch. Squelch was set at 50%, and the channel selector was switched to channel 15.

The power supply cable to the radio was broken about 1 m (3 feet) from its point of entry to the radio. The insulation of these wires was stretched over the ends of the copper wires.

It was reported that the radio was in good order before the casualty and that channel 11 is normally used for listening/calling by the fishermen of Île d'Entrée.

A portable boxed and gimballed compass was found in the sand in the vessel's bottom. It was cleaned off and appeared to be in good order. There was no air bubble in its liquid suspension. There was no provision for compensation of the compass. It was reported that the compass would indicate 164° on a direct course from Cap-aux-Meules to Île d'Entrée, and that the compass had indicated such a course on November 19, 1987. On that occasion the compass had been placed on the table forward of the steering wheel.

It should be noted that the true course between the islands is 140°(T) and that with the variation in the area being 23.5°W and the deviation on that heading in the order of 0.5°W, this is within acceptable limits.

The vessel was equipped with a 12 V electric bilge pump fitted with an automatic switch. The pump had a capacity of 4.5 L/sec (1750 g/h). It was reported that the pump was operating well before the casualty. It was found correctly installed and properly wired.

The echo-sounder fish finder found on board had never been wired or operational. There was no transducer fitted in the hull.

A large steel anchor was found in the fore part of the vessel with about 20 m of new 25 mm. diameter polypropelene rope.

It was reported that the contents of the vessel were not disturbed by either those who found her or those who transported her to La Vernière.

For a full list and description of the vessel's contents

see Annex I.

5. History of "61D403"

The vessel was built for a resident of Île d'Entrée in 1968. She was employed for many years in lobster and other fishing. The vessel was further employed for some years in mail transport from Cap-aux-Meules to the Island.

Because of some leakage, reported to be minor, the vessel was fibreglassed in 1980 as described in analysis 3.

The vessel was sold to her present owner in 1985, after which she was re-engined and a new wheel-house was constructed of plywood.

The procedures set out in the Small Vessel Regulations for the transfer of ownership were completed at Cap-aux-Meules on April 1, 1985.

It was reported that prior to 1985 the vessel frequently transported goods the weight of which exceeded that carried on the day of the casualty. There is a regular ferry service to Île d'Entrée from Cap-aux-Meules and, thus, the goods carried by the "61D403" were, mainly, for the family's own use. Both past and present owners estimated the vessel's draught at about 0.8 m on the day of the casualty.

In 1987, due to the re-occurrence of minor leakage at the bow and skeg, the vessel was given further coats of fibreglass in these areas where the fibreglass coat was broken. The leakage stopped.

Similar quantities of gasoline had been transported in the vessel seven or eight times in 1987 by the owner's brother, who was in charge on the day of the casualty.

The vessel was also employed in hand line fishing for mackerel for which she was licenced.

6. Safety equipment

A 'fishing vessel' is defined in the Canada Shipping Act as:

> ... a ship that is employed in catching fish, whales, seals, walrus or other living resources and that does not carry passengers or

cargo.

in the Small Fishing Vessel Inspection Regulations as:

> ... a vessel that is to be used in Commercial fishing or that is engaged in Commercial fishing...

and in the Small Vessel Regulations as:

> ... a vessel engaged in commercial fishing;

In order to meet the needs of some of the secluded fishing communities across Canada, the term "employed" and/or "engaged" as used in the definitions (above) of a fishing vessel is interpreted to mean "actual involvement in". At the time of the casualty, the "61D403" was neither engaged in fishing nor was she proceeding to or returning from the fishing grounds. The safety, navigation and precautions against fire requirements contained in the Small Fishing Vessel Inspection Regulations are similar in content to those required by the Small Vessel Regulations. In this casualty, the "61D403" did not meet the requirements for either of these Regulations in that she did not carry:

(a) adequate approved lifejakets/PFDs for each person on board (only 2 lifejacekts and 1 PFD were reportedly carried for the 5 persons on board);

(b) an approved lifebuoy; and

(c) any pyrotechnic distress signals.

(For excerpts of the Small Fishing Vessel Inspection Regulations and the Small Vessel Regulations see Annex II A and II B.)

At the time of the casualty, the vessel did not carry any navigation lights and, as the casualty occurred during daylight hours, she was not required by the Collision Regulations to carry them. However, the Collision Regulations did require the vessel to be provided with some means of making an efficient sound signal but there was no such provision aboard the "61D403".

As the vessel was licensed to fish, she would, from time to time, have to operate in environmental conditions that are not always favourable as in this instance and consequently, she would have been required by Rule 40 of

the Collision Regulations to be fitted with a passive radar reflector; the "61D403" was not fitted with a passive radar reflector.

Although the vessel was not equipped with a radar, a search light, navigation lights, sound signalling apparatus, distress signals, the "61D403" departed Cap-aux-Meules in failing light and reduced visibility. Further, the C.B. R/T was found on channel 15 and not channel 9, the emergency frequency or channel 11, a frequency generally monitored by the local fishermen Thus, had channel 15 been used by the vessel when the need to seek assistance arose, the chances for the message being intercepted were poor.

The vessel was equipped with a 205 L drum which served as a fuel tank. The drum was laid horizontally across the vessel aft of the wheel-house below the level of the gunwale. The drum had not been lashed down, and had been discovered displaced on its mounting on November 22, 1987. The fuel line from the tank was separated from the in-line fuel filter and gasoline had leaked into the vessel's bottom. Further, had the fuel tank been overfilled at any time during bunkering operation, the resultant spillage of gasoline into the bottom of the boat would have constituted a fire hazard. Thus, the "61D403" did not meet the requirements of either the Small Fishing Vessel Inspection Regulations or the Small Vessel Regulations; both of which stress the need to prevent gasoline from spilling into the bottom of the vessel. In this casualty, the failure to meet this requirement had no bearing on this tragedy.

(For exerpts of these regulations see Annex II A and Annex II B).

7. Autopsy

An autopsy was performed on the bodies of Lorne McLean and Kimberly Patton at Rimouski, Qc on November 22, 1987.

The autopsy report was unremarkable, the cause of death was determined to be asphyxia by drowning.

A blood alcohol level was determined in both cases. These were found to be:

- Lorne McLean 143 MGM%
- Kimberly Patton Complete absence of alcohol

A Brief Guide to the Units and Interpretation of Blood Alcohol Measurements, prepared by the Defence and Civil Institute of Environmental Medicine, tabulates blood ethanol concentrations and their effect on the performance of a moderate drinker of 68 kg (150 lb) body weight.

According to the table, at a level of 120 MGM% there is an observable speech impairment and the person is probably "under the influence". At a level of above 150 MGM% the person is certainly "under the influence" and shows possible gross evidence of intoxication, incoordination, and an increase of reaction time of 30%.

The Criminal Code of Canada, Part VI Section 237 (a) (b) (Operation of motor vehicle, vessel or aircraft while impaired or with more than 80 mg alcohol in blood) states:

> 237. Every one commits an offence who operates a motor vehicle or vessel or operates or assists in the operation of an aircraft or has the care or control of a motor vehicle, vessel or aircraft whether it is in motion or not,
>
> (a) while his ability to operate the vehicle, vessel or aircraft is impaired by alcohol or a drug; or
>
> (b) having consumed alcohol in such a quantity that the concentration thereof in his blood exceeds eighty milligrams of alcohol in one hudred millilitres of blood.

Lorne McLean was in charge of "61D403" on the day of the casualty.

The table and extracts from the Criminal Code are reproduced in Annexes III and IV respectively.

8. Hypothesis on the cause of the casualty

The vessel was seen to leave the quay at Cap-aux-Meules at about 1445 on November 21, 1987. Her normal transit time to Île d'Entrée at a speed of 10 knots, was in the region of 48 minutes.

The ferry "GERTRUDE AND BEATRICE" departed Île d'Entrée for Cap-aux-Meules at 1510 on a reciprocal course to that normally taken by the "61D403". Given that the

"GERTRUDE AND BEATRICE" completed the crossing at 9.6 knots, and the "61D403" was at her normal speed of 10 knots, the two vessels should have passed each other about 2 miles from Île d'Entrée. Both a visual and radar watch were kept on the "GERTRUDE AND BEATRICE" but while radar echoes of buoys were picked up at 4 miles an echo which could have been the "61D403" was not sighted, nor was the vessel sighted visually. Visibility was reported by the "GERTRUDE AND BEATRICE" to be under 2 miles during her transit.

No communication from "61D403" was heard on CB radio.

The vessel was discovered, wrecked, on the southern side of Sandy Hook at about 0530 on November 22, 1987. There were no survivors.

While the cause of the casualty remains unknown there are some indications as to what may have happened.

The person given the charge of the vessel was alcohol impaired, and as determined in Analysis 7, his reaction time was appreciably reduced by as much as 30%. His comportment as observed before sailing, however, did not appear abnormal.

There were several heavy objects found in the bottom of the wreck when she was discovered. There were, for example, two lead-acid batteries, 3 tyre fenders, a partly filled fuel tank which was not secured to the hull and the vessel's anchor. The paint on the top of the vessel's stem, the highest part of the vessel, was unmarked.

It is unlikely therefore that the vessel capsized in deep-water as the heavy objects found would not have been present in the vessel. Equally, the absence of marks on her stem would appear to indicate that she had not capsized in shallow water.

On the vessel's starboard gunwale and on her after thwart were nailed lengths of 5 cm x 10 cm (2" x 4") wood which had served as supports for the wheel-house starboard plywood bulkhead and as a door sill respectively. The starboard bulkhead had been nailed to its support with 5 cm (2") galvanised nails. The upper outer edge of the wood on the starboard side showed signs of having been recently broken off in an inward direction. (see photographs)

A similar arrangement had held the wheel-house on the

port side, but there was no part of this remaining.

An experiment conducted showed that similar breakage occurred when a force from the opposite side from the breakage was applied. It is possible that the wheel-house broke up after having had a force exerted on it from the port side. In the sand in the bottom of the vessel was found broken glass presumably from wheel-house windows, again indicating that an inward force had been applied.

The CB radio was stowed under the wheel-house deck-head above the steering position. It had been pulled from its mounting and was found in the bottom of the vessel. The wires leading to it from the battery had been cut at about the level of the steering position. The insulation on the wires had been stretched and was longer than the wires. It is possible that, if the wheel-house had been demolished by a wave, the wires to the radio would have been cut in this fashion.

The shelf on which the vessel's engine control was mounted on the port side was missing together with the control lever itself. The control cables were, however, found aboard. The engine was in ahead gear. While it is impossible to say that this was the case at the time of the casualty, an indication that this was so was that the tachometer read 3000 r.p.m., indicating that the engine had suddenly stopped. As the ignition key was found in the 'ON' position, the stoppage may have been otherwise caused.

The vessel's fuel tank was discovered displaced on its mounting, and the fuel filter was disconnected from the fuel line leading to the engine. As the fuel tank was about half full when the vessel left Cap-aux-Meules, and was unsecured on its mounting, it is possible that the tank may have either floated off its mounting when the vessel was swamped, or, alternatively, jolted off when she grounded. Either possibility may have caused the fuel filter to have become disconnected.

It was possible to move the undamaged rudder during the inspection of the wreck. The vessel's cast metal steering wheel was found, broken in half, attached to its drum and steering ropes. The whole was found bolted to its fascia mounting which had been on the port side.

The vessel's portable boxed and gimballed compass was found aboard. It was uncompensated. It was reported that the compass indicated 164°C (140°T) on a direct

course from Cap-aux-Meules to Île d'Entrée. It is possible that the compass was affected by the ten steel drums stowed forward of the wheel-house. If deviation was caused by induced magnetism in the drums, it would be greatest on a compass heading of East and West and zero on a heading of North or South, and would cause the compass card to deflect to the right. If the vessel was steering her normal course of 164°C, therefore, she would have been heading to the south of her intended course.

As discussed in Analysis 1 the wind in the Baie de Plaisance rapidly deteriorated between 1400 and 1600. The wind and quickly building swell were from the North-east. Both wind and swell were on the beam of "61D403". Except during Northerly winds, the "GERTRUDE AND BEATRICE", which makes several crossings daily, did not report any strong set torwards the south. The vessel did report, however, that she was frequently caused to drift to the South in these winds, and had at times to allow leeway to compensate.

It was reported that the effect of northerly winds in the Baie de Plaisance on a vessel sailing from Cap-aux-Meules is not fully felt until she comes out of the lee of Cap Alright, a distance of about 1.4 miles from Cap-aux-Meules breakwater. Local opinion was that "61D403" would probably not have experienced difficulty before this time, about 1455.

Had she been swamped as early as 1455, it is very probable that her rate of drift would have been considerably reduced and she would have been sighted by the "GERTRUDE AND BEATRICE" when she transitted the area some 50 minutes later. This area is close to the position of buoy YD2 for which the latter vessel was looking both by radar and visually.

It is probable that "61D403" was much nearer to Île d'Entrée when the casualty occurred and that she had drifted to the south under the influence of the wind. It is also possible that her compass was affected by her cargo and that the vessel was to the south of her intended course for this reason. A deviation to the south from her intended course of as little as 15° would have, at 1516, when she was abeam of the "GERTRUDE AND BEATRICE", placed the vessel at the limits of the prevailing visibility, about 1.5 miles.

The vessel probably ran aground in the shallow water to the North and East of Sandy Hook. As no call for help

was heard on CB radio previous to this, it is possible that she had earlier been swamped and that her wheel-house had been swept away by the heavy breaking seas in the area. Until the vessel was swept clear of the broken water she would have made a poor radar target.

Debris from the wreck was first sighted at 2113 in position 47°11.5'N, 61°48.04'W some 5.2 miles SXW from the northern edge of this bank.

The minimum charted depth over the shoal water to the east of Sandy Hook is 1 foot. (0.3 m). Between 1500 and 1600 on November 21 1987 the least depth over the shoal would have been 3.49 ft (1.06 m). (See Analysis 1). This depth is greater than the vessel's estimated draught of 0.8 m. With wave heights reported to have been 1 to 2 metres in the area, it is unlikely that the vessel would have remained aground on the northern edge of the shoal for any length of time.

According to the Sailing Directions and to local knowledge the flood tide sets west along the south coast of Île-de-Havre Aubert and during the flood also sets strongly northwards towards and through La Passe.

One theory is that the vessel, having been carried over the shoal water by the breakers and NE wind, was set back towards the shoal by the flood tide which ran from about 1500 to 2030. The vessel probably was not readily visible to those searching for her in the heavy breakers.

The ebb tide then ran until about 0340 on November 22 1987 and the vessel probably remained aground on the southern edge of the shoal until this time. Under the influence of the flood tide the vessel was probably set to the west until she was found at 0530 by vehicles patrolling Sandy Hook.

Debris from her wheel-house and cargo which floated on the surface of the water and was discovered at 2113 was probably less susceptible to tidal influence and was in fact found about 5.2 miles S x W from the presumed area of her initial grounding. That little debris from the vessel was found on Sandy Hook would appear to lend credence to this hypothesis.

The general westerly set of the tide South of Île-du-Havre Aubert is confirmed by the discovery of more floating debris from the vessel by the "S.S. BEVKEN", at 1516 on November 22, 1987, some 5 miles W x N of the

position of the sighting of 2113 on November 21, 1987.

The seawater temperature outside the Baie de Plaisance was about +1°C at the presumed time of the casualty. The chance of survival for a person wholly immersed in water of this temperature, unless immediately rescued, is slim. (See annex V).

9. Qualifications and experience

The operator of "61D403" was a professional fisherman with 13 years experience. He was often in sole charge of another larger fishing vessel for a different owner and was reported to be a competent seaman and fisherman conversant with the waters of the Îles-des-Madeleine. He was uncertificated, and was not required to be certificated by regulation.

The second member of the crew on the day of the casualty was a professional fisherman with 2 to 3 years experience. He also was uncertificated, and was not required to be certificated by regulation.

Both men had completed at least seven crossings from Cap-aux-Meules to Îles d'Entrée in 1987 carrying goods and gasoline.

Findings

The precise cause of the casualty involving "61D403" is not known but she was probably swamped and then wrecked on the north side of the shoal water to the east of Sandy Hook in the late afternoon of November 21, 1987, while she was enroute from Cap-aux-Meules to Île d'Entrée in poor weather conditions. Of the five persons on board, two are known to have perished and the three others are missing, presumed drowned.

It would appear that the following factors contributed to the casualty:

- the vessel's operator had consumed alcohol;
- weather conditions in the area, as forecast, deteriorated rapidly after the vessel sailed from Cap-aux-Meules;
- the vessel was out in sea conditions for which she was not designed;

- visibility in the Baie de Plaisance at the presumed time of the casualty was under two miles and visual geographic positioning of the vessel would have been difficult;

- the vessel was probably south of her intended track due to leeway and, possibly, an unrecognized compass error, leading her into shoal water rather than into the shelter of Île d'Entrée.

Following the casualty, it would appear that the 5 persons lost their lives due to the following contributory factors:

- neither victim found was wearing either a lifejacket or a PFD and there were insufficient lifejackets and/or PFDs for the full complement on board as required by either the Small Fishing Vessel Inspection Regulations or the Small Vessel Regulations;

- the victims were submerged in cold seawater at a temperature of +1°C which severely limited their survival time;

- the non-carriage of navigation lights in conjunction with the non-compliance with the Collision Regulations in respect of the radar reflector made search and rescue more difficult.

Other Findings

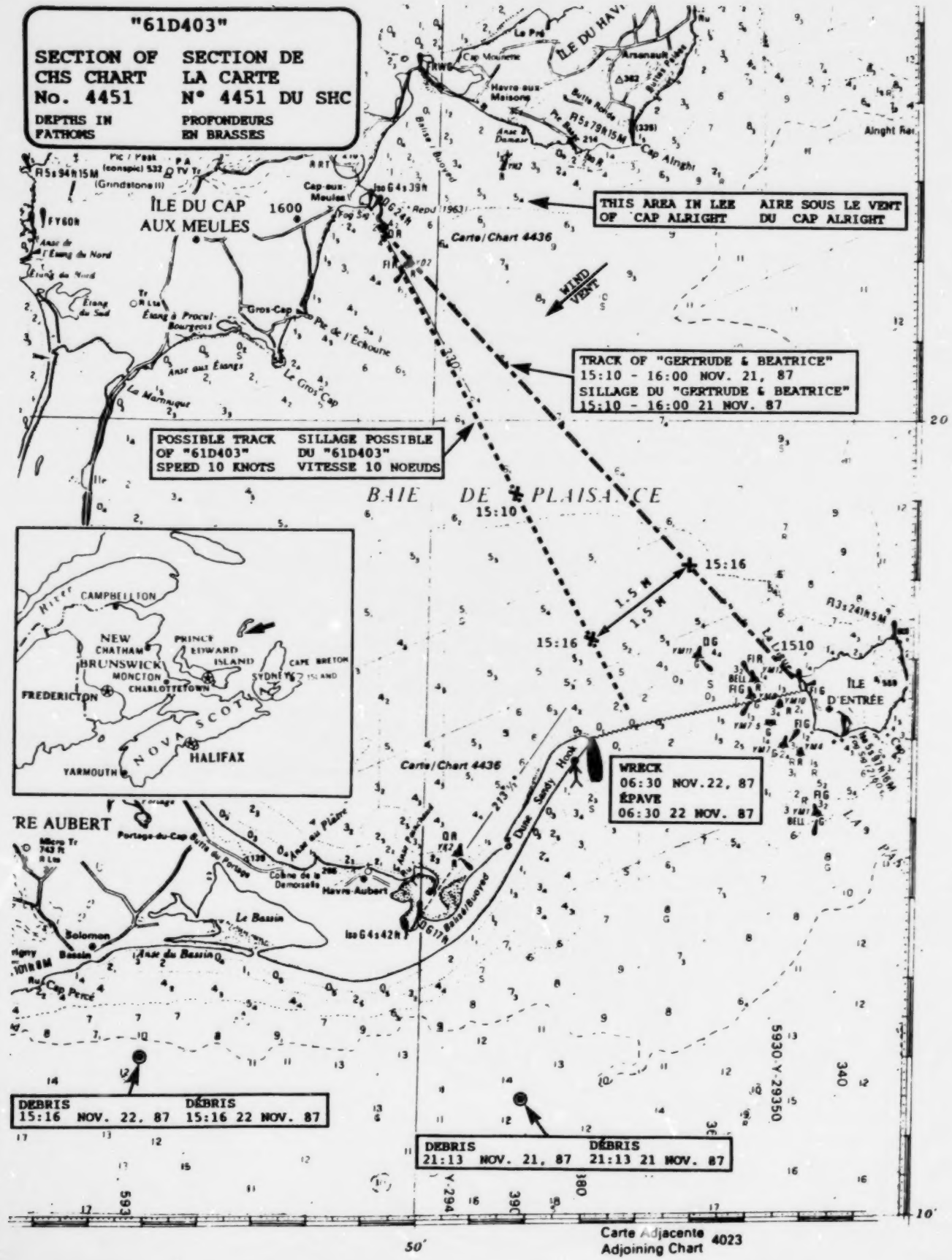
Although it had no bearing on the outcome, the vessel's failure to meet the requirements to prevent the spillage of gasoline into the bottom of the boat greatly increased the fire hazard aboard while refuelling.

MARINE CASUALTY INVESTIGATIONS
TRANSPORT CANADA
8th FLOOR EXPORT BUILDING
110, O'CONNOR STREET
OTTAWA, ONTARIO
K1A 0N5

JANUARY 1989.

Glossary

CB	Citizen's Band Radio
CCG	Canadian Coast Guard
CCGV	Canadian Coast Guard Vessel
CCRS	Coast Guard Radio Station
CFB	Canadian Forces Base
CSA	Canada Shipping Act
g/h	Gallons per hour
(L) L/sec	Litres per second
PAN	The spoken word identifing an urgency message
PFD	Personal Flotation Device
RCC	Rescue Coordination Centre
RCMP	Royal Canadian Mounted Police
R/T	Radiotelephone
SAR	Search and Rescue
VCN	Call sign of Grindstone Coast Guard Radio Station
VHF	Very High Frequency (Radio-telephone)


"61D403"
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SECTION DE LA CARTE N° 4451 DU SHC
DEPTHS IN FATHOMS
PROFONDEURS EN BRASSES
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AIRE SOUS LE VENT DU CAP ALRIGHT
TRACK OF "GERTRUDE & BEATRICE" 15:10 - 16:00 NOV. 21, 87
SILLAGE DU "GERTRUDE & BEATRICE" 15:10 - 16:00 21 NOV. 87
POSSIBLE TRACK OF "61D403" SPEED 10 KNOTS
SILLAGE POSSIBLE DU "61D403" VITESSE 10 NOEUDS
WRECK 06:30 NOV.22, 87
ÉPAVE 06:30 22 NOV. 87
DEBRIS 15:16 NOV. 22, 87
DÉBRIS 15:16 22 NOV. 87
DEBRIS 21:13 NOV. 21, 87
DÉBRIS 21:13 21 NOV. 87
ÎLE DU CAP AUX MEULES
BAIE DE PLAISANCE
Carte/Chart 4436
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1.5 M
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Carte Adjacente
Adjoining Chart 4023
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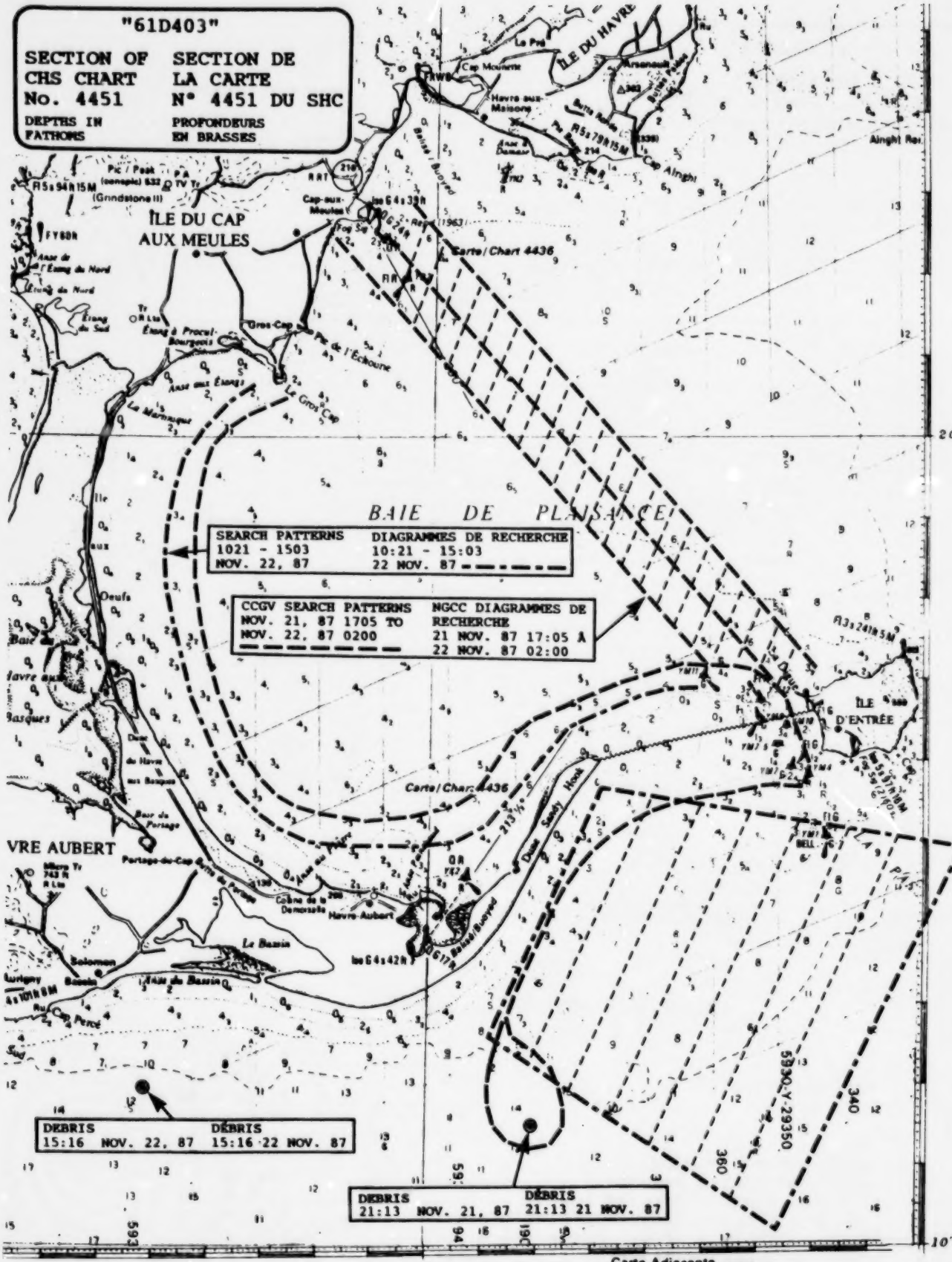
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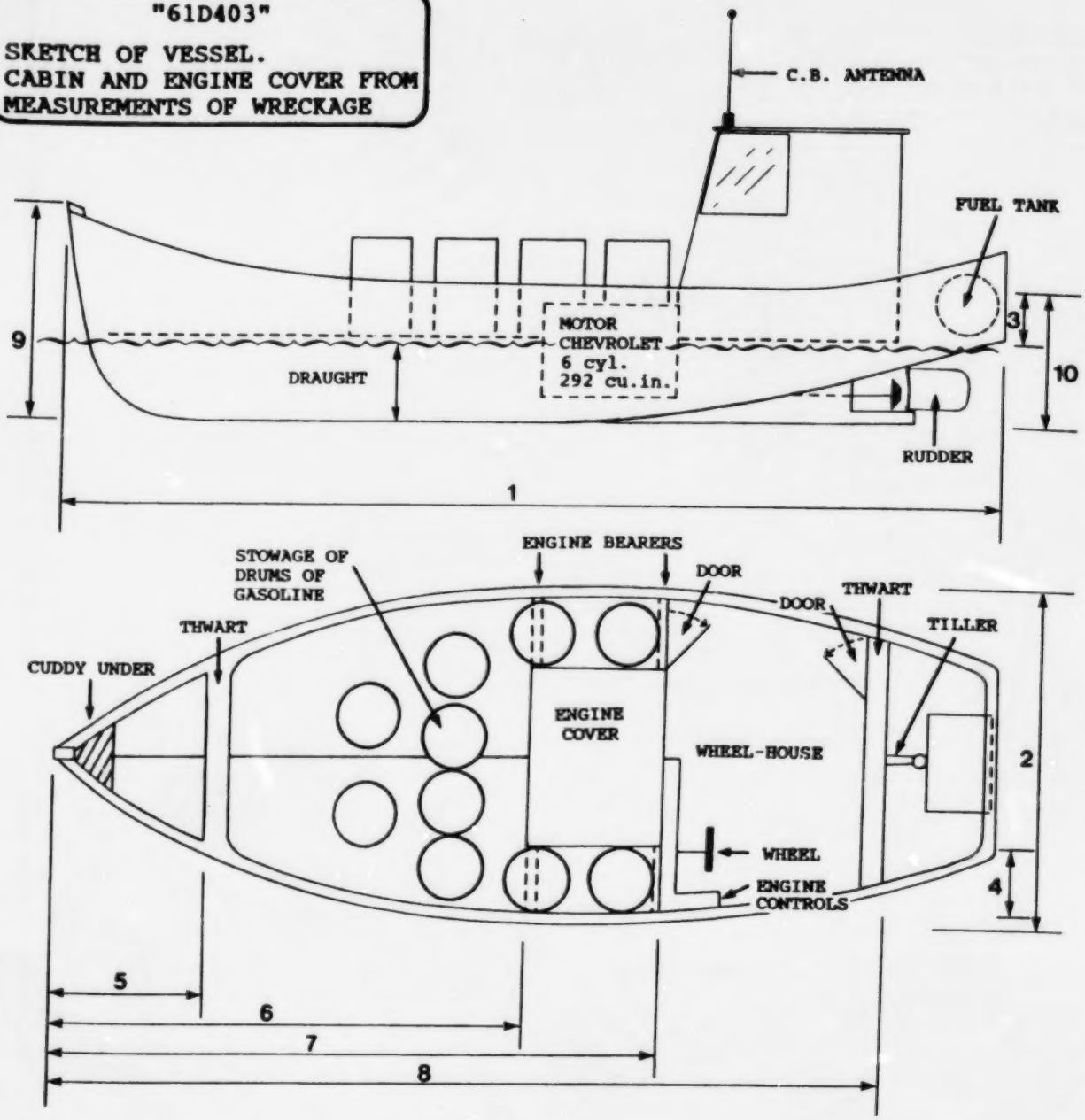
Carte Adjacente 4023
Adjoining Chart

"61D403"

SKETCH OF VESSEL.
CABIN AND ENGINE COVER FROM MEASUREMENTS OF WRECKAGE



PRINCIPAL DIMENSIONS OF VESSEL

1.	LOA	8.63 m
2.	Extreme Breadth	3.048 m
3.	Deck Level	0.305 m below at gunwale
4.	Space between engine cover and inside bulwark	061 m
5.	Distance Stern - forward thwart	1.40 m
6.	Distance Stern - forward engine bearer	4.45 m
7.	Distance Stern - after engine bearer	5.7 m
8.	Distance Stern - afterside after thwart	7.70 m
9.	Height Keel - top of stern	1.80 m
10.	Height Keel - top of gunwale at engine	1.29 m

ANNEX I

Articles found in the wreck of "61D403".

1	Chevrolet 292 cu.ins 6 cylinder gasoline engine and power train, with morse control cables attached to the accelerator and gear change.
1	1051. (45 gallon) drum serving as a fuel tank with fuel line to motor, containing approximately 5 gallons gasoline. The drum was displaced on its mountings and detached from its in-line fuel filter.
1	Fuel filter detached from its line to the fuel tank.
1	CB radio. Make Johnson Messenger 123A with microphone attached. The volume was switched on full. Squelch was set at 50%. The channel selector was set at channel 15. The power wires to the set were cleanly cut about 1 metre from the set and the insulation was about 1 cm (1/2 inch) longer than the wires at the break.
1	Bilge pump. Make Rule. Capacity 1750 gallons/hour fitted with an automatic bilge switch, 15 amp, make MAYFAIR model 601. All in working order.
1	Instrument panel with gauges for engine cooling water, amperes, oil pressure and r.p.m. The panel was fitted with an ignition switch in which the ignition key was found in he 'ON' position. The revolution indicator (electronic) showed 3000 RPM. All other gauges indicated zero.
2	Unwired instrument panels, reported not to be in use.
1	Boxed and gimballed uncompensated liquid dampened magnetic compass. Card diameter 3". Manufacturer

	SAURA KEIKI SEISAKUSHO. When cleaned of sand the compass appeared in good condition, and did not contain an air bubble.
3	Tyre fenders.
2	hand fishing lines.
1	Large anchor with about 20 metres of new yellow polypropelene rope of 25 mm diameter.
1	Steering wheel, broken in half, attached by 25 mm polypropelene rope to the vessel's tiller.
2	Lead-acid batteries, one wired to the vessels wiring loom.
1	RAYTHEON fathometer type DE 725 C. The vessel's hull had never been fitted with a transducer and the fathometer had never been in use.
	Broken glass, probably from the wheel-house windows. Wheel-house debris.
1	Fishing knife
8	Assorted wrenches
3	Screw drivers
1	Bottle Canadian whisky
1	Broken bottle of rum.

Articles found on Sandy Hook

Cabin debris

1	Work boot,
2	Pairs black jogging pants.
1	Sweater
1	Glove
1	Scarf
1	anorak, beige with red stripes

1	Black leather jacket

All the above were identified as belonging to those on board "61D403".

ANNEX II A

CHAPTER 1487

CANADA SHIPPING ACT

Small Vessel Regulations

REGULATIONS RESPECTING SMALL VESSELS

Short Title

1. These Regulations may be cited as the *Small Vessel Regulations*.

Interpretation

2. (1) In these Regulations,

"fishing vessel" means a vessel engaged in commercial fishing; (*bateau de pêche*)

PART V

REQUIREMENTS FOR POWER-DRIVEN VESSELS NOT OVER FIFTEEN TONS THAT DO NOT CARRY PASSENGERS AND ARE NOT PLEASURE CRAFT OR FISHING VESSELS

Application

30. This Part applies to power-driven vessels not over 15 tons gross tonnage if such vessels do not carry passengers and are not pleasure craft or fishing vessels.

"Over 8 m and not over 12 m in Length

33. (1) Every vessel over 8 m and not over 12 m in length shall carry

(*a*) one approved standard lifejacket or approved small vessel lifejacket for each person on board;

(*b*) one approved 762 mm diameter lifebuoy with not less than 9 m of rope attached;"

"(*c*) six approved pyrotechnic distress signals of any type and six approved pyrotechnic distress signals of Type A, B or C,"

(*d*) one bailer and one manual or power-driven bilge pump;

"(*e*) one anchor with not less than 15 m of cable, rope or chain;"

(*f*) one fire bucket;

(*g*) one Class B I fire extinguisher;

(*h*) if equipped with a cooking or heating appliance that burns liquid or gaseous fuel, one additional Class B I fire extinguisher; and

"(2) Every vessel over 8 m and not over 12 m in length shall be fitted with navigation lights and sound signalling apparatus that permit the vessel to comply with the *Collision Regulations*."

APPENDICE II A

CHAPITRE 1487

LOI SUR LA MARINE MARCHANDE DU CANADA

Règlement sur les petits bâtiments

RÈGLEMENT CONCERNANT LES PETITS BÂTIMENTS

Titre abrégé

1. Le présent règlement peut être cité sous le titre: *Règlement sur les petits bâtiments*.

Interprétation

2. (1) Dans le présent règlement,

«bateau de pêche» désigne un bâtiment affecté à la pêche commerciale; (*fishing vessel*)

PARTIE V

PRESCRIPTIONS RELATIVES AUX BÂTIMENTS À PROPULSION MÉCANIQUE D'UNE JAUGE D'AU PLUS QUINZE TONNEAUX, QUI NE TRANSPORTENT PAS DE PASSAGERS ET QUI NE SONT PAS DES EMBARCATIONS DE PLAISANCE NI DES BATEAUX DE PÊCHE

Application

30. La présente partie s'applique aux bâtiments à propulsion mécanique d'une jauge brute d'au plus 15 tonneaux, qui ne transportent pas de passagers et qui ne sont pas des embarcations de plaisance ni des bateaux de pêche.

«Au plus 5,5 m de longueur

31. (1) Tout bâtiment d'au plus 5,5 m de longueur doit avoir»

a) un gilet de sauvetage normalisé approuvé ou un gilet de sauvetage approuvé pour petits bâtiments, pour chaque personne à bord;

b) une bouée de sauvetage approuvée de 762 mm de diamètre, munie d'un cordage d'au moins 9 m;»

«*c*) six signaux pyrotechniques de détresse approuvés de n'importe quel type et six signaux pyrotechniques de détresse approuvés du type A, B ou C;»

d) une écope et une pompe de cale à main ou mécanique;

«*e*) une ancre avec au moins 15 m de câble, de cordage ou de chaîne;»

f) un seau à incendie;

g) un extincteur de classe B I;

h) un extincteur de classe B I supplémentaire, si le bâtiment est doté d'un appareil de cuisson ou de chauffage qui consomme du combustible liquide ou gazeux; et

«(2) Tout bateau de plus de 8 m et d'au plus 12 m de longueur doit être muni de feux de navigation et d'un appareil de signalisation sonore qui lui permettent de se conformer au *Règlement sur les abordages*.»

PART VI

PRECAUTIONS AGAINST FIRE

Application

36. This Part applies to

(*a*) pleasure craft other than pleasure craft that are registered or licensed in a country other than Canada and comply with the laws of that country;

(*b*) vessels not over 5 tons, gross tonnage, if such vessels carry not more than 12 passengers; and

(*c*) vessels not over 15 tons, gross tonnage, if such vessels do not carry passengers and are not pleasure craft or fishing vessels.

Fuelling

38. (1) Gasoline tanks and lines shall be so installed and maintained as to prevent

(*a*) leakage of gasoline, and

(*b*) spillage of gasoline into the bilges when tanks are being filled.

(2) When gasoline tanks are being filled, a funnel or other efficient device shall be used to prevent

(*a*) leakage of gasoline, and

(*b*) spillage of gasoline into the hull of the vessel.

(3) Vessels carrying passengers shall not be fuelled when passengers are on board.

PARTIE VI

PRÉCAUTIONS CONTRE L'INCENDIE

Application

36. La présente partie vise

a) les embarcations de plaisance, autres que celles qui ont été immatriculées ou pour lesquelles un permis a été délivré ailleurs qu'au Canada et qui répondent aux prescriptions des lois et règlements du pays où a eu lieu l'immatriculation ou la délivrance du permis;

b) les bâtiments d'une jauge brute d'au plus 5 tonneaux, qui transportent au plus 12 passagers; et

c) les bâtiments d'une jauge brute d'au plus 15 tonneaux, qui ne transportent pas de passagers et qui ne sont pas des embarcations de plaisance ni des bateaux de pêche.

Plein d'essence

38. (1) Les réservoirs à essence et la tuyauterie doivent être installés et entretenus de façon

a) à prévenir les fuites; et

b) à empêcher l'essence de se répandre dans les fonds lorsqu'on fait le plein.

(2) Pour faire le plein des réservoirs à essence, on doit se servir d'un entonnoir ou autre dispositif efficace afin d'empêcher l'essence

a) de fuir; et

b) de se répandre dans la coque du bâtiment.

(3) On ne doit pas faire le plein d'essence des bâtiments servant au transport des passagers pendant qu'il y a des passagers à bord.

REGULATIONS FOR THE PREVENTION OF COLLISIONS

Short Title

1. These Regulations may be cited as the *Collision Regulations*.

PART C—LIGHTS AND SHAPES

RULE 20

Application

(*a*) Rules in this Part shall be complied with in all weathers.

(*b*) The Rules concerning lights shall be complied with from sunset to sunrise, and during such times no other lights shall be exhibited, except such lights as cannot be mistaken for the lights specified in these Rules or do not impair their visibility or distinctive character, or interfere with the keeping of a proper look-out.

(*c*) The lights prescribed by these Rules shall, if carried, also be exhibited from sunrise to sunset in restricted visibility and may be exhibited in all other circumstances when it is deemed necessary.

(*d*) The Rules concerning shapes shall be complied with by day.

(*e*) The lights and shapes specified in these Rules shall comply with the provisions of Annex I to these Regulations.

RÈGLEMENT POUR PRÉVENIR LES ABORDAGES

Titre abrégé

1. Le présent règlement peut être cité sous le titre: *Règlement sur les abordages*.

PARTIE C—FEUX ET MARQUES

RÈGLE 20

Champ d'application

a) Les règles de la présente partie doivent être observées par tous les temps.

b) Les règles concernant les feux doivent être observées du coucher au lever du soleil. Pendant cet intervalle, on ne doit montrer aucun autre feu pouvant être confondu avec les feux prescrits par les présentes règles et pouvant gêner la visibilité ou le caractère distinctif de ceux-ci ou pouvant empêcher d'exercer une veille satisfaisante.

c) Les feux prescrits par les présentes règles, lorsqu'ils existent, doivent également être montrés du lever au coucher du soleil par visibilité réduite et peuvent être montrés dans toutes les autres circonstances où cette mesure est jugée nécessaire.

d) Les règles concernant les marques doivent être observées de jour.

e) Les feux et les marques prescrits par les présentes règles doivent être conformes aux dispositions de l'appendice I des présentes règles.

RULE 22

Visibility of Lights

The lights prescribed in these Rules shall have an intensity as specified in section 8 of Annex I to these Regulations so as to be visible at the following minimum ranges:

(*c*) In vessels of less than 12 metres in length:

—a masthead light, 2 miles,

—a sidelight, 1 mile,

—a sternlight, 2 miles,

—a towing light, 2 miles,

—a white, red, green or yellow all-round light, 2 miles.

RÈGLE 22

Portée lumineuse des feux

Les feux prescrits par les présentes règles doivent avoir l'intensité spécifiée à la section 8 de l'appendice I du présent règlement, de manière à être visibles aux distances minimales suivantes:

c) Pour les navires de longueur inférieure à 12 mètres:

—feu de tête de mât: 2 milles;

—feu de côté: 1 mille;

—feu de poupe: 2 milles;

—feu de remorquage: 2 milles;

—feu blanc, rouge, vert ou jaune visible sur tout l'horizon: 2 milles.

PART D—SOUND AND LIGHT SIGNALS

RULE 33

Equipment for Sound Signals—International

(*a*) A vessel of 12 metres or more in length shall be provided with a whistle and a bell and a vessel of 100 metres or more in length shall, in addition, be provided with a gong, the tone and sound of which cannot be confused with that of the bell. The whistle, bell and gong shall comply with the specifications in Annex III. The bell or gong or both may be replaced by other equipment having the same respective sound characteristics, provided that manual sounding of the prescribed signals shall always be possible.

(*b*) A vessel of less than 12 metres in length shall not be obliged to carry the sound signalling appliances prescribed in paragraph (*a*) of this Rule but if she does not, she shall be provided with some other means of making an efficient sound signal.

(*c*) Notwithstanding paragraph (*b*), in the Canadian waters of a roadstead, harbour, river, lake or inland waterway, a vessel that is

(i) less than 12 metres in length,

(ii) built or converted for the purpose of pushing or pulling any floating object, and

(iii) not solely employed in yarding or warping operations,

shall carry the sound signal appliances prescribed in paragraph (*a*) for a vessel of 12 metres or more in length.

PARTIE D—SIGNAUX SONORES ET LUMINEUX

RÈGLE 33

Matériel de signalisation sonore—International

a) Les navires de longueur égale ou supérieure à 12 mètres doivent être pourvus d'un sifflet et d'une cloche et les navires de longueur égale ou supérieure à 100 mètres doivent être en outre pourvus d'un gong dont le son et le timbre ne doivent pas pouvoir être confondus avec ceux de la cloche. Le sifflet, la cloche et le gong doivent satisfaire aux spécifications de l'appendice III du présent règlement. La cloche ou le gong, ou les deux, peuvent être remplacés par un autre matériel ayant respectivement les mêmes caractéristiques sonores, à condition qu'il soit toujours possible d'actionner manuellement les signaux prescrits.

b) Les navires de longueur inférieure à 12 mètres ne sont pas tenus d'avoir à leur bord les appareils de signalisation sonore prescrits au paragraphe *a*) de la présente règle, mais ils doivent, en l'absence de tels appareils, être munis d'un autre moyen d'émettre un signal sonore efficace.

c) Nonobstant l'alinéa *b*), dans les eaux canadiennes d'une rade, d'un port, d'un cours d'eau, d'un lac ou d'une voie navigable intérieure, un navire

(i) de moins de 12 mètres de longueur,

(ii) construit ou converti en vue de pousser ou de tirer un objet flottant, et

(iii) ne servant pas uniquement au triage ou au halage,

doit transporter à bord les appareils de signalisation sonore prescrits à l'alinéa *a*) pour un navire de 12 mètres ou plus de longueur.

RULE 40

Radar Reflectors

*(*a*) Subject to paragraph (*b*), a vessel that is less than 20 metres in length or is constructed primarily of non-metallic materials shall be equipped with a passive radar reflector.

(*b*) Paragraph (*a*) does not apply where

(i) a vessel operates in limited traffic conditions, daylight, and favourable environmental conditions and where compliance is not essential for the safety of the vessel, or

(ii) the small size of the vessel or its operation away from radar navigation makes compliance impracticable.

RÈGLE 40

Réflecteurs radar

*a) Sous réserve de l'alinéa *b*), tout navire d'une longueur inférieure à 20 mètres ou construit principalement de matériaux non métalliques doit être doté d'un réflecteur radar passif.

b) L'alinéa *a*) ne s'applique pas

(i) lorsque le navire est exploité dans des conditions où le trafic est léger, de jour et dans des conditions atmosphériques favorables et qu'il n'est pas nécessaire pour sa sécurité qu'il s'y conforme; ou

(ii) lorsque la petite taille du navire ou que le fait de l'exploiter à l'extérieur des zones où se pratique la navigation au radar font qu'il est impossible de s'y conformer.

NOTE: THE COLLISION REGULATIONS APPLY TO ALL VESSELS.

NOTA: LE RÈGLEMENT SUR LES ABORDAGES S'APPLIQUE À TOUS LES NAVIRES.

ANNEX II B

CANADA SHIPPING ACT

Small Fishing Vessel Inspection Regulations

PART II

FISHING VESSELS NOT EXCEEDING FIFTEEN TONS, GROSS TONNAGE

Application

52. This Part applies to fishing vessels not exceeding 15 tons, gross tonnage, that are not sailing ships.

Life Saving Equipment, Lights and Signals

53. (1) In this section, "approved", when used in reference to an article, means that the article has been built in accordance with the standards therefor in the *Life Saving Equipment Regulations* and has been approved by the Board.

(2) Every fishing vessel of open construction not exceeding 7.9 m in length shall carry

(*a*) one approved lifejacket for each person or one approved lifebuoy for every two persons on board the vessel; if lifebuoys are carried in lieu of lifejackets, at least one shall be fitted with 27 m of line; and

(*b*) one watertight can containing six self-igniting red flares

(3) Every fishing vessel of open construction exceeding 7.9 m but not exceeding 12.2 m in length shall carry

(*a*) one approved lifejacket for each person, or one approved lifebuoy for every two persons on board the vessel;

(*b*) one approved lifebuoy fitted with 27 m of line, but such lifebuoy need not be additional to any lifebuoys carried pursuant to paragraph (*a*); and

(*c*) one watertight can containing six self-igniting red flares.

(4) Every fishing vessel of closed construction not exceeding 7.9 m in length shall carry

(*a*) one approved lifejacket for each person on board the vessel; and

(*b*) one watertight can containing six self-igniting red flares.

(5) Every fishing vessel of closed construction exceeding 7.9 m but not exceeding 12.2 m in length shall carry

(*a*) one approved lifejacket for each person on board the vessel;

(*b*) one approved lifebuoy fitted with 27 m of line; and

(*c*) one watertight can containing six self-igniting red flares.

APPENDICE II B

LOI SUR LA MARINE MARCHANDE DU CANADA

Règlement sur l'inspection des petits bateaux de pêche

PARTIE II

BATEAUX DE PÊCHE D'UNE JAUGE BRUTE D'AU PLUS QUINZE TONNEAUX

Application

52. La présente partie s'applique aux bateaux de pêche qui, ayant une jauge brute d'au plus 15 tonneaux, ne sont pas des voiliers.

Équipement de sauvetage, feux et signaux

53. (1) Au présent article, l'expression «approuvé», appliquée à un objet, signifie que l'objet a été construit conformément aux normes applicables, établies dans le *Règlement sur l'équipement de sauvetage*, et qu'il a été approuvé par le Bureau.

(2) Tout bateau de pêche non ponté d'une longueur d'au plus 7,9 m aura

a) un gilet de sauvetage approuvé pour chaque personne à bord ou une bouée de sauvetage approuvée pour deux personnes; si des bouées de sauvetage remplacent des gilets de sauvetage, au moins l'une d'elles sera munie d'une ligne de 27 m; et

b) une boîte métallique étanche à l'eau contenant six feux rouges à allumage automatique.

(3) Tout bateau de pêche non ponté d'une longueur de plus de 7,9 m mais d'au plus 12,2 m aura

a) un gilet de sauvetage approuvé pour chaque personne à bord ou une bouée de sauvetage approuvée pour deux personnes;

b) une bouée de sauvetage approuvée munie d'une ligne de 27 m, mais il ne sera pas nécessaire que cette bouée de sauvetage s'ajoute à celles qui sont prévues à l'alinéa *a*); et

c) une boîte métallique étanche à l'eau contenant six feux rouges à allumage automatique.

(4) Tout bateau de pêche ponté d'une longueur d'au plus 7,9 m aura

a) un gilet de sauvetage approuvé pour chaque personne à bord; et

b) une boîte métallique étanche à l'eau contenant six feux rouges à allumage automatique.

(5) Tout bateau de pêche ponté d'une longueur de plus de 7,9 m mais d'au plus 12,2 m aura

a) un gilet de sauvetage approuvé pour chaque personne à bord;

b) une bouée de sauvetage approuvée munie d'une ligne de 27 m; et

c) une boîte métallique étanche à l'eau contenant six feux rouges à allumage automatique.

(6) Every fishing vessel exceeding 12.2 m in length shall carry

(*a*) one approved lifejacket for each person on board the vessel;

(*b*) a sufficient number of life boats, boats, dories or skiffs to accommodate all persons on board the vessel;

(*c*) one approved lifebuoy fitted with 27 m of line; and

(*d*) one watertight can containing six self-igniting red flares.

(7) Every fishing vessel shall carry equipment and lights in accordance with the *Collision Regulations* or the *Rules of the Road for the Great Lakes*, whichever are applicable, and the lights shall be capable of burning continuously from sunset to sunrise.

Fire Extinguishing Equipment

54. (1) Every fishing vessel of open construction shall carry one fire bucket.

(2) Every fishing vessel of closed construction shall carry

(*a*) one 4.5 L foam fire extinguisher or one equivalent fire extinguisher as set out in section 55;

(*b*) one fire bucket; and

(*c*) if fitted with cooking or heating appliances that burn liquid or gaseous fuel, one 4.5 L foam fire extinguisher, or one equivalent fire extinguisher, as set out in section 55, in addition to the fire extinguisher required under paragraph (*a*).

(3) In the case of a fishing vessel not exceeding 5 tons, gross tonnage, the equipment referred to in paragraphs (2)(*b*) and (*c*) need not be carried.

55. (1) Every fire extinguisher required by these Regulations shall be of a type approved by

(*a*) the Underwriters' Laboratories of Canada;

(*b*) the Department of Trade and Industry of Great Britain;

(*c*) the United States Coast Guard; or

(*d*) the Board.

(2) For the purposes of section 54, a carbon dioxide or dry chemical fire extinguisher is equivalent to a foam fire extinguisher if it has the capacity set out opposite the foam fire extinguisher capacity in the table to this subsection.

TABLE

Item	Foam	CO_2	Dry Chemical
	litres	kilograms	kilograms
1.	4.5	2.25	1
2.	9	4.5	2.25

(3) Fire extinguishers required by these Regulations shall, where possible, be stowed near the entrance to the space where they are intended to be used.

(4) Fire extinguishers in which the extinguishing medium is stored under pressure shall not be located in any crew living quarters on a fishing vessel.

(6) Tout bateau de pêche d'une longueur de plus de 12.2 m aura

a) un gilet de sauvetage approuvé pour chaque personne à bord;

b) des embarcations de sauvetage ou autres, des doris ou des esquifs en nombre suffisant pour recevoir toutes les personnes à bord;

c) une bouée de sauvetage approuvée munie d'une ligne de 27 m; et

d) une boîte métallique étanche à l'eau contenant six feux rouges à allumage automatique.

(7) Tout bateau de pêche doit avoir un équipement et des feux qui répondent aux prescriptions des *Règles sur les abordages en mer* ou à celles des *Règles de route pour les Grands lacs*, selon le cas, et les feux devront pouvoir éclairer sans interruption du coucher au lever du soleil.

Matériel d'extinction d'incendie

54. (1) Tout bateau de pêche non ponté aura à bord un seau d'incendie.

(2) Tout bateau de pêche ponté aura

a) un extincteur à mousse de 4,5 L, ou un extincteur équivalent comme il est indiqué à l'article 55;

b) un seau d'incendie; et

c) s'il est muni d'appareils de cuisson ou de chauffage brûlant du combustible liquide ou gazeux, un extincteur à mousse de 4,5 L, ou un extincteur équivalent comme il est indiqué à l'article 55, en plus de l'extincteur prévu à l'alinéa *a*).

(3) Dans le cas d'un bateau de pêche d'une jauge brute d'au plus 5 tonneaux, le matériel mentionné aux alinéas *b*) et *c*) du paragraphe (2) ne sera pas de rigueur.

55. (1) Tout extincteur d'incendie exigé au présent règlement sera d'un type approuvé

a) par le Underwriters' Laboratories of Canada;

b) par le Department of Trade and Industry of Great Britain;

c) par la United States Coast Guard; ou

d) par le Bureau.

(2) Pour l'application de l'article 54, un extincteur au gaz carbonique ou un extincteur à poudre extinctrice équivaut à un extincteur à mousse s'il a la capacité indiquée en regard de celle de l'extincteur à mousse dans le tableau du présent paragraphe.

TABLEAU

N°	Mousse	CO_2	Poudre extinctrice
	litres	kilogrammes	kilogrammes
1.	4,5	2,25	1
2.	9	4,5	2,25

(3) Les extincteurs d'incendies exigés par le présent règlement seront, autant que possible, placés près de l'entrée du local à protéger.

(4) Les extincteurs d'incendie dont l'agent extincteur est sous pression ne seront pas placés dans les postes d'équipage d'un bateau de pêche.

(5) Every fire extinguisher provided in compliance with these Regulations shall be kept fully charged at all times; carbon dioxide gas in steel bottles shall be renewed whenever the loss of gas exceeds 10 per cent of the original charge as stamped on the bottle.

(6) Notwithstanding anything contained in these Regulations, the use of a vapourizing liquid fire extinguisher is prohibited, except that in radio rooms and at switchboards such an extinguisher may be used if it contains not more than 1.136 L of vapourizing liquid and is used in addition to the other extinguishers required by these Regulations.

(7) Fire extinguishers containing chlorobromomethane may be accepted as the equivalent of carbon tetrachloride fire extinguishers if they comply with the requirements of subsections (6) and (8).

(8) A notice shall be posted on or adjacent to any carbon tetrachloride fire extinguisher indicating that if the extinguisher is used for extinguishing fire in a confined space dangerous fumes will be given off which must not be inhaled.

Precautions Against Fire

56. (1) Care shall be taken to prevent leakage of gasoline or the risk of fire due to unshielded woodwork or other inflammable material being in too close proximity to hot surfaces.

(2) Where a reserve supply of gasoline is carried, it shall be carried in a metal container and the spout or opening in the container shall be provided with an effective cap.

(3) When gasoline tanks are being filled, an efficient funnel shall be used to prevent the gasoline from spilling into the hull of the vessel.

(4) Gasoline tanks shall be installed so that gasoline cannot spill into the bilges while the tanks are being filled.

(5) Appliances that burn liquid or gaseous fuel shall be so fitted that there is a free circulation of air all around and below the appliance.

(6) Wooden bulkheads behind cooking or heating appliances shall be protected from the heat.

Periodic Inspection

57. Every fishing vessel in excess of 5 tons, gross tonnage, if propelled by steam shall have the following parts inspected annually by an inspector:

(*a*) boilers, boiler mounting and steam pipes;

(*b*) life saving equipment; and

(*c*) fire extinguishing equipment.

(5) Tout extincteur d'incendie prévu au présent règlement sera tenu pleinement chargé en tout temps; les bouteilles d'acier renfermant de l'anhydride carbonique seront rechargées si la perte de gaz vient à dépasser 10 pour cent de la charge qui y est poinçonnée.

(6) Nonobstant toute disposition du présent règlement, l'emploi d'extincteurs à liquide volatil est interdit sur un bateau de pêche. Toutefois, dans les salles radio de bord et aux tableaux de commutation, un extincteur de ce genre pourra être utilisé s'il contient au plus 1,136 L de liquide volatil et s'il s'ajoute aux autres extincteurs exigés audit règlement.

(7) Les extincteurs d'incendie contenant du chlorobromométhane pourront être acceptés comme équivalents des extincteurs à tétrachlorure de carbone s'ils répondent aux prescriptions des paragraphes (6) et (8).

(8) Il sera affiché sur tout extincteur a tétrachlorure de carbone, ou à proximité, un avis indiquant qu'il se produit, lorsque l'extincteur sert à combattre un incendie dans un local clos, des vapeurs dangereuses qu'il faut éviter de respirer.

Précautions contre les incendies

56. (1) Des précautions seront prises pour empêcher les fuites d'essence ou supprimer les risques d'incendie que constituent les boiseries ou autres matières inflammables non protégées situées trop proche des surfaces brûlantes.

(2) S'il y a de l'essence en réserve à bord, elle sera renfermée dans un récipient métallique et l'ouverture ou le bec du récipient sera fermé au moyen d'un bon bouchon.

(3) Pour faire le plein des soutes à essence, on utilisera un bon entonnoir afin d'empêcher l'essence de tomber dans la coque du bateau.

(4) Les soutes à essence seront installées de façon que l'essence ne puisse se répandre dans les petits fonds pendant le remplissage.

(5) Les appareils brûlant du combustible liquide ou gazeux seront installés de telle façon que l'air puisse circuler librement tout autour et en dessous.

(6) Les cloisons de bois à l'arrière des appareils de cuisson et de chauffage seront protégées contre la chaleur.

Inspection périodique

57. Les pièces suivantes de tout bateau de pêche d'une jauge brute de plus de 5 tonneaux, s'il est mû par la vapeur; seront examinées annuellement par l'inspecteur:

a) les chaudières, leurs garnitures et les conduites de vapeur;

b) l'équipement de sauvetage; et

c) le matériel d'extinction d'incendie.

A BRIEF GUIDE TO THE UNITS AND THE INTERPRETATION OF BLOOD ALCOHOL MEASUREMENTS

BY

Operational Life Support Unit
DEFENCE AND CIVIL INSTITUTE OF ENVIRONMENTAL MEDICINE
1133 Sheppard Avenue West, P.O. Box 2000
DOWNSVIEW, Ontario

TABLE 2

BLOOD ETHANOL CONCENTRATIONS AND EFFECT ON PERFORMANCE[1,3,4,5]
(ABSORPTIVE STAGE, 150 LB PERSON, MODERATE DRINKER, UNLESS OTHERWISE STATED)

12-18 FLUID OZ. *PURE* ALCOHOL TAKEN IN SHORT PERIOD OF TIME	600 MGM %		FATAL
	650 MGM %	Approx. upper limit	"UNDER THE INFLUENCE"
	600 MGM %	"Dead drunk"	
	450 MGM %	Possible coma, general anesthesia	
	400 MGM %	Stupor	
	300 MGM %	Confusion, gross incoordination	
	250 MGM %	Possible sedation, sleep	
	200 MGM %	Stumbling and falling	
6 OZ. WHISKEY OR 6 BOTTLES BEER	150 MGM %	Above 150, certainly "under the influence", possible gross evidence of intoxication, incoordination, increase of 30 % in reaction time	PROBABLY "UNDER THE INFLUENCE"
	120 MGM %	Observable speech impairment	
	100 MGM %	Denmark penalizes all drivers above 100	
	80 MGM %	Sweden and Ontario penalize all drivers above 80	POSSIBLY "UNDER THE INFLUENCE"
2 OZ. WHISKEY OR 2 BOTTLES BEER	50 MGM %	Norway penalizes all drivers above 50, slight impairment for complex tasks, increase of 10% in reaction time	PROBABLY NOT "UNDER THE INFLUENCE"
	40 MGM %	Reduction in visual acuity for heavy drinkers, 30% impairment of "precision" driving ability	
	30 MGM %	Reduction in visual acuity for moderate drinkers	
	20 MGM %	Reduction in visual acuity for abstainers	
	1 MGM %	"Normal" body content less than 1 MGM %	

ANNEX IV

APPENDICE IV

CRIMINAL CODE

CODE CRIMINEL

237. [Operation of motor vehicle, vessel or aircraft while impaired or with more than 80 mg alcohol in blood] Every one commits an offence who operates a motor vehicle or vessel or operates or assists in the operation of an aircraft or has the care or control of a motor vehicle, vessel or aircraft whether it is in motion or not,

(a) while his ability to operate the vehicle, vessel or aircraft is impaired by alcohol or a drug; or

(b) having consumed alcohol in such a quantity that the concentration thereof in his blood exceeds eighty milligrams of alcohol in one hundred millilitres of blood.

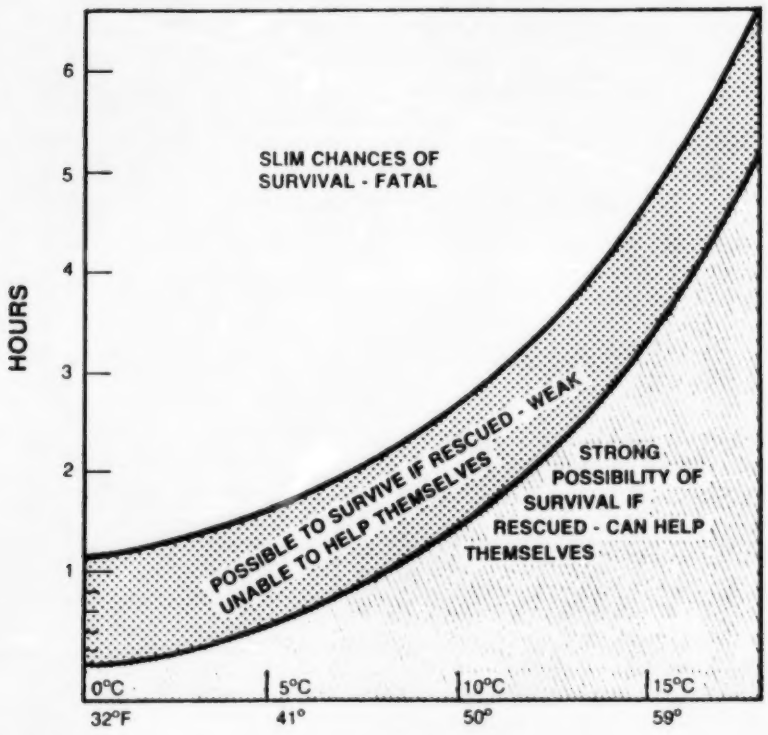
237. [Capacité de conduire affaiblie] Commet une infraction, quiconque conduit un véhicule à moteur, un bateau ou un aéronef, ou aide à conduire un aéronef, ou a la garde ou le contrôle d'un véhicule à moteur, d'un bateau ou d'un aéronef, que celui-ci soit en mouvement ou non, dans un des cas suivants :

a) lorsque sa capacité de conduire ce véhicule, ce bateau ou cet aéronef est affaiblie par l'effet de l'alcool ou d'une drogue;

b) lorsqu'il a consommé une quantité d'alcool telle que son alcoolémie dépasse quatre-vingts milligrames d'alcool par cent millilitres de sang.

ANNEX V

COLD WATER SURVIVAL



The accompanying graph shows average predicted survival times of average, adult humans in water of different temperatures. The figures are based on experimental cooling of average men and women who were holding still in ocean water and wearing a standard lifejacket and light clothing. The graph shows, for example, that predicted survival time is about 2½-3 hours in water of 10°C (50°F). Predicted survival time is increased by extra body fat and decreased by small body size. Although women generally possess slightly more fat than men they cool slightly faster due to their usually small body size. However, for comparable sizes, the man will cool faster.

"COLD WATER SURVIVAL"
CANADIAN RED CROSS

CANADA SHIPPING ACT

LOI SUR LA MARINE MARCHANDE DU CANADA

CHAPTER S-9

An Act respecting shipping

SHORT TITLE

Short title

1. This Act may be cited as the *Canada Shipping Act*. R.S., c. 29, s. 1.

INTERPRETATION

"passenger" «passager»

"passenger" means any person carried on a ship, but does not include

(*a*) a person carried on a Safety Convention ship who is

(i) the master or a member of the crew or a person employed or engaged in any capacity on board the ship on the business of that ship, or

(ii) under one year of age;

(*b*) a person carried on a ship that is not a Safety Convention ship who is

(i) the master or a member of the crew, or a person employed or engaged in any capacity on board the ship on the business of that ship,

(ii) the owner or charterer of the ship, a member of his family or a servant connected with his household,

(iii) a guest of the owner or charterer of the ship if it is used exclusively for pleasure and the guest is carried on the ship without remuneration or any object of profit, or

(iv) under one year of age; or

(*c*) a person carried on any ship in pursuance of the obligation laid upon the master to carry shipwrecked, distressed or other persons or by reason of any circumstances that neither the master nor the owner nor the charterer, if any, could have prevented or forestalled;

CHAPITRE S-9

Loi concernant la marine marchande

TITRE ABRÉGÉ

Titre abrégé

1. La présente loi peut être citée sous le titre : *Loi sur la marine marchande du Canada*. S.R., c. 29, art. 1.

INTERPRÉTATION

«passager» "passenger"

«passager» signifie toute personne transportée sur un navire, mais ne comprend pas

a) une personne transportée sur un navire ressortissant à la Convention de sécurité et qui est

(i) le capitaine ou un membre de l'équipage, ou une personne employée ou occupée à bord, en quelque qualité que ce soit, pour les affaires de ce navire, ou

(ii) âgée de moins d'un an;

b) une personne transportée sur un navire ne ressortissant pas à la Convention de sécurité et qui est

(i) le capitaine ou un membre de l'équipage, ou une personne employée ou occupée à bord, en quelque qualité que ce soit, pour les affaires de ce navire,

(ii) le propriétaire ou l'affréteur du navire, un membre de sa famille ou un domestique à son service,

(iii) un invité du propriétaire ou de l'affréteur du navire, si celui-ci est utilisé exclusivement à des fins d'agrément et si l'invité est transporté sur ce navire sans rémunération ou intention de profit, ou

(iv) âgée de moins d'un an; ni

c) une personne transportée sur un navire, soit en exécution de l'obligation qui incombe au capitaine de transporter des naufragés, des personnes en détresse ou d'autres personnes, soit par suite de circonstances que ni le capitaine ni le propriétaire ni l'affréteur (s'il en est) ne pouvaient empêcher ni prévenir;

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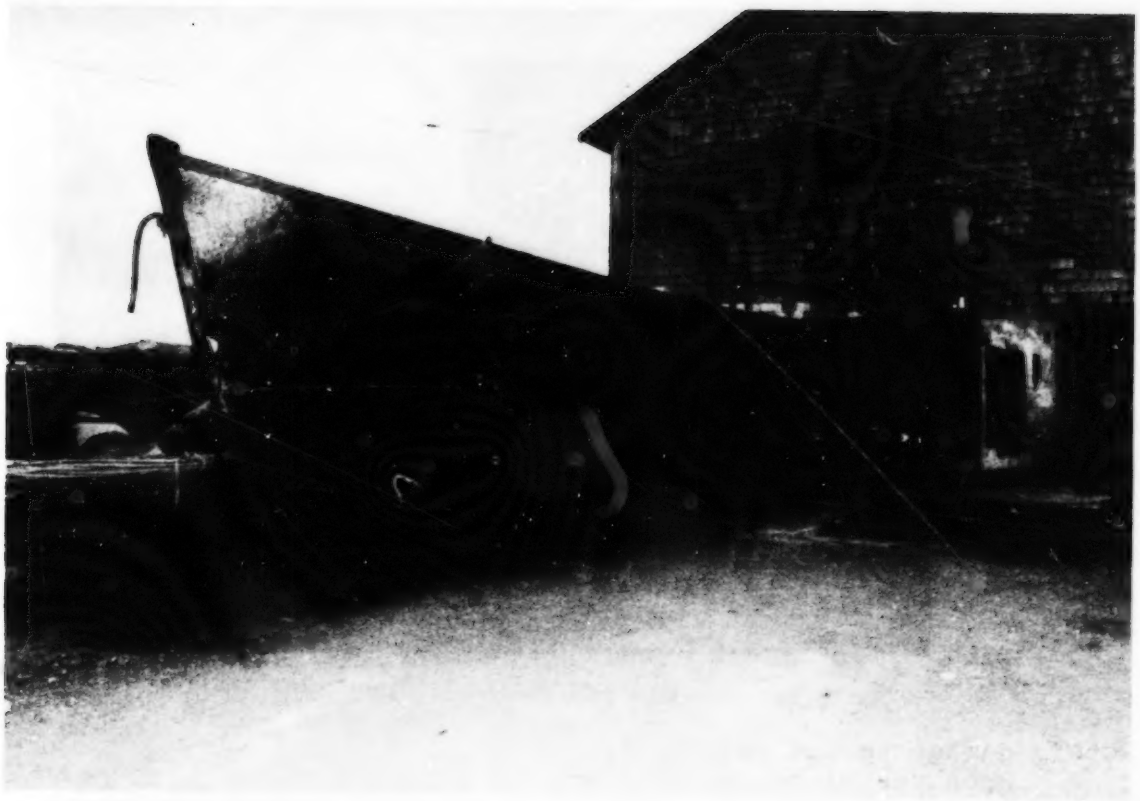
Photographies en format plus grand courtoisie de la Sûreté du Québec.

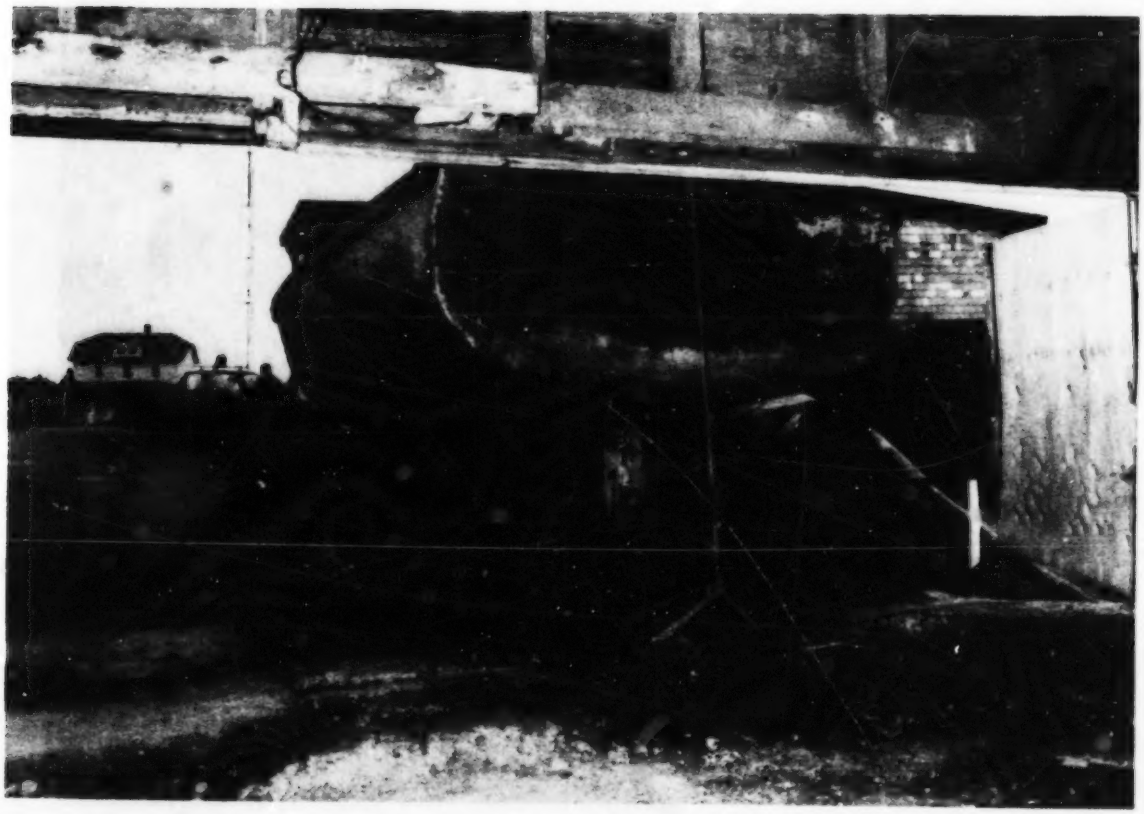
Île d'Entrée seen from the eastern point of Sandy Hook.

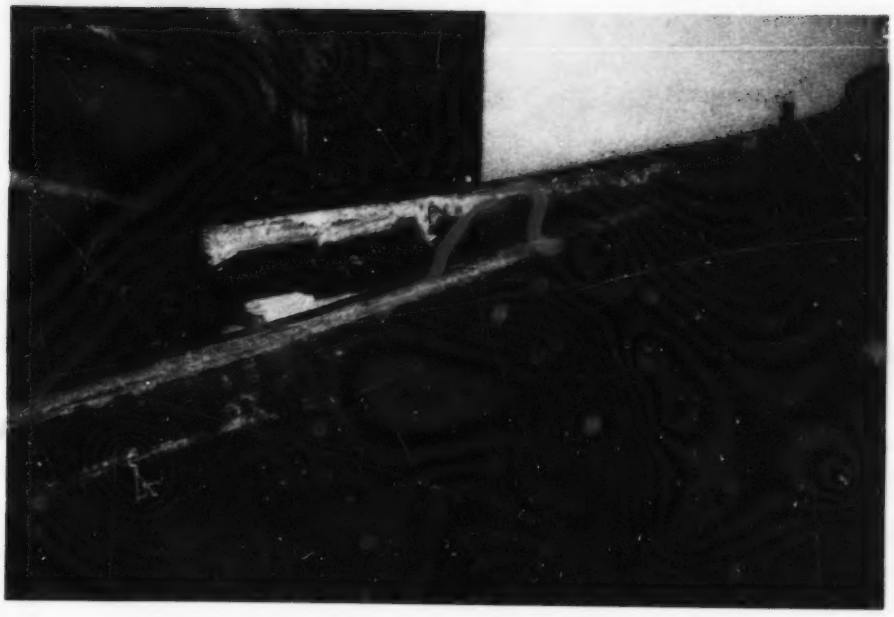
Île d'Entrée vue de la pointe Est de Sandy Hook.

Wreckage on Sandy Hook.

Débris de naufrage à Sandy Hook.

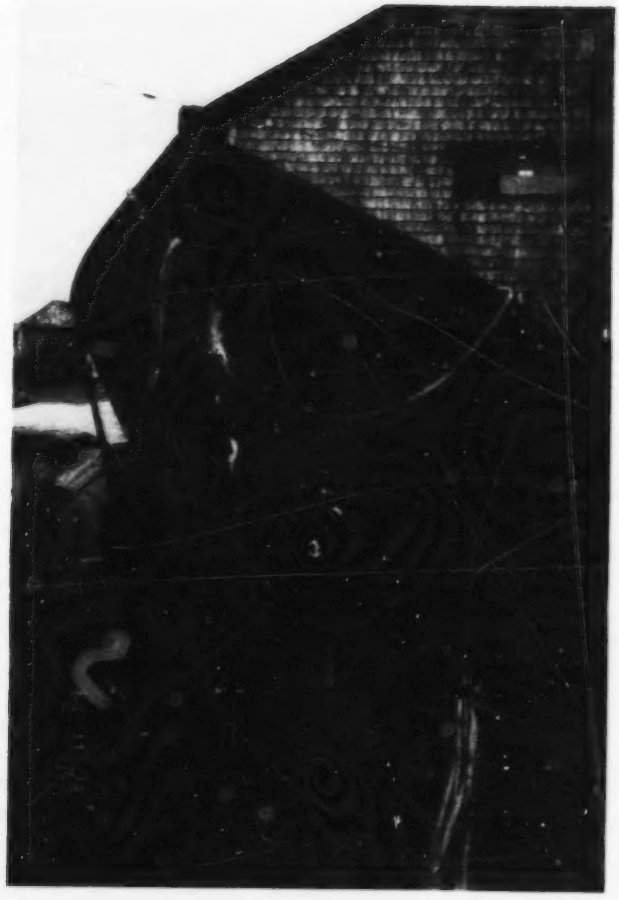


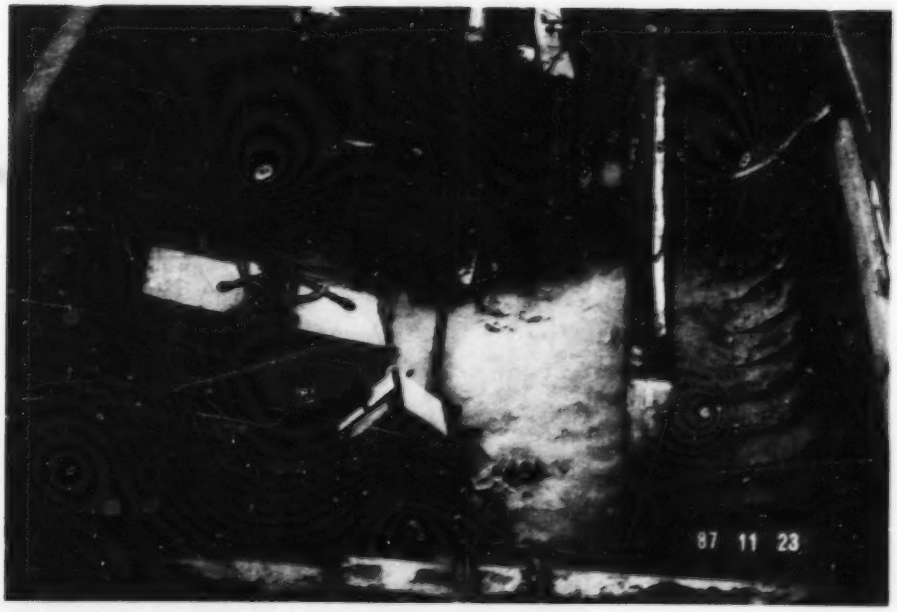




Note: damage to bow caused when vessel hauled up on beach.

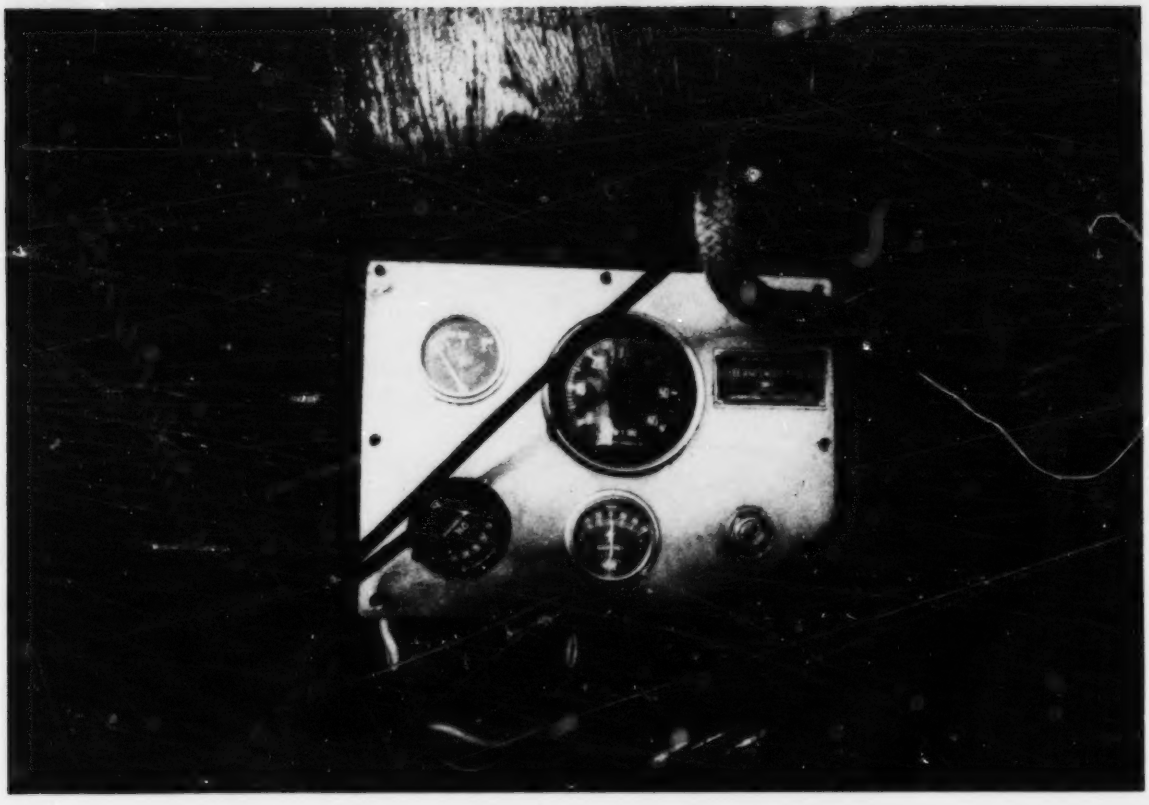
Nota : avaries subies par la proue lorsque le navire a été halé sur la plage.



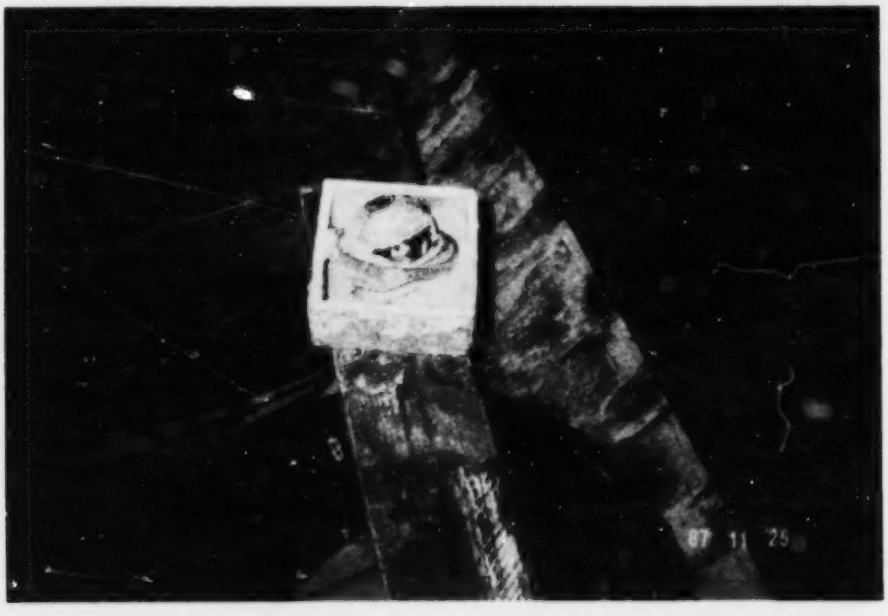

87 11 23

Note: wheel and fuel tank.

Nota : roue et réservoir de carburant.

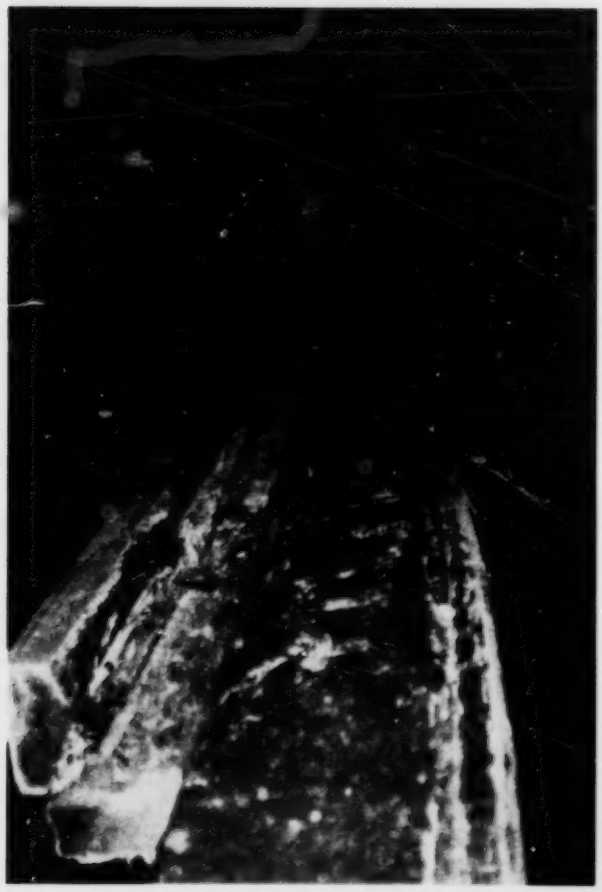


Instrument panel and compass. Panneau de commande et compas.

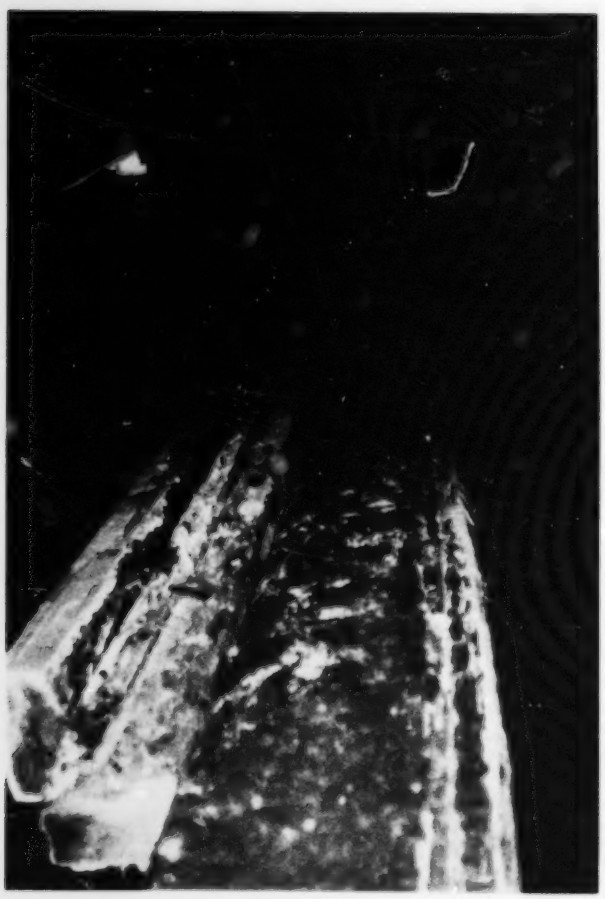


Wheel-house wreckage.

Débris de la timonerie.



Remains of wheel-house
on starboard gunwhale.



Les restes de la timonerie
sur le pavois tribord.